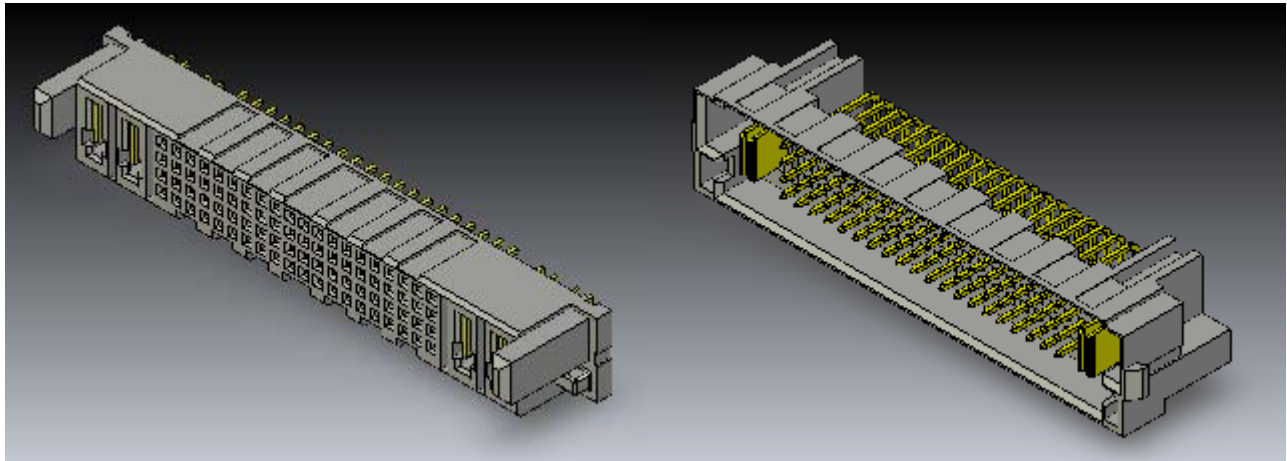




Project Number:		Tracking Code: TC0736--1440 & TC089--1609	
Requested by: Kevin Meredith		Date: 9/7/2007	Product Rev: 0
Part #: MPSC-02-80-02-7.70-01-L-V-LC, MPTC-02-80-02-01-L-RA-LC, MPTC-02-80-02-6.30-01-L-V-LC		Lot #: NA	Tech: Tori Meek, Tony Wagoner
Part description: MPT/MPS			Qty to test: 100
Test Start: 09/07/2007		Test Completed: 12/19/2007	



DESIGN VERIFICATION TEST REPORT

MPTC-02-80-02-01-01-L-RA-LC mated with MPSC-02-80-02-7.70-01-L-V-LC

MPTC-02-80-02-6.30-01-L-V-LC mated with MPSC-02-80-02-7.70-01-L-V-LC

(MPS/MPT)

Tracking Code: TC0736--1440 & TC089--1609	Part #: MPTC-02-80-02-01-01-L-RA-LC/ MPSC-02-80-02-7.70-01-L-V-LC MPTC-02-80-02-6.30-01-L-V-LC/ MPSC-02-80-02-7.70-01-L-V-LC
Part description: MPTC/MPSC	

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to ISO 10012-1 and ANSI/NCSL 2540-1, as applicable.

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SCOPE

To perform the following tests: DVT on MPX-VT AND MPX-RA PLUS MATE UNMATE OF 02 AND 08 POWER MODULES.

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) After soldering, the parts to be used for LLCR and DWV/IR testing were cleaned according to TLWI-0001.
- 4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
- 5) The automated procedure is used with aqueous compatible soldering materials.
- 6) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
- 7) Any additional preparation will be noted in the individual test sequences.
- 8) Solder Information: Lead Free
- 9) Parts were wave soldered
- 10) Samtec Test PCBs used: PCB-100917-TST-XX

FLOWCHARTS**MPTC-02-80-02-6.30-01-L-V-LC / MPSC-02-80-02-7.70-01-L-V-LC**

TEST STEP	GROUP A	GROUP B1	GROUP B2
	10 Boards 100 Cycles	Individual Contacts (30) min	Individual Contacts (30) min
01	Contact Meas.	Setup Approve	Setup Approve
02	Mating / Unmating		
03	Data Review	Normal Force	Thermal Aging (Mated)
04	100 Cycles	Data Review	Normal Force
05	Mating / Unmating		
06	Contact Meas.		
07	Data Review		
08	Thermal Aging (Mated)		
09	Mating / Unmating		
10	Contact Meas.		
11	Data Review		
12	Humidity (Mated)		
13	Mating / Unmating		
14	Contact Meas.		

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C;

Time Condition 'B' (250 hours)

Humidity = EIA-364-31, Test Condition 'B' (240 Hours)

and Method III (+25 ° C to +65 ° C @ 90%RH to 98% RH)

ambient pre-condition and delete steps 7a and 7b

Mating/Un-Mating Forces = EIA-364-13

Normal Force = EIA-364-04

Contact Gaps/Height - No standard method. Usually measured optically

FLOWCHARTS Continued**MPTC-02-80-02-01-L-RA-LC / MPSC-02-80-02-7.70-01-L-V-LC**

TEST STEP	GROUP C 10 Boards Cycles	GROUP D1 Individual Contacts (10) min	GROUP D2 Individual Contacts (10) min
01	Contact Meas.	Setup Approve	Setup Approve
02	Mating / Unmating	Normal Force	Thermal Aging (Mated)
03	Data Review	Data Review	Normal Force
04	Cycles		
05	Mating / Unmating		
06	Contact Meas.		
07	Data Review		
08	Thermal Aging (Mated)		
09	Mating / Unmating		
10	Contact Meas.		
11	Data Review		
12	Humidity (Mated)		
13	Mating / Unmating		
14	Contact Meas.		

IR / DWV**MPTC-02-80-02-6.30-01-L-V-LC / MPSC-02-80-02-7.70-01-L-V-LC**

TEST STEP	GROUP A 2 Boards Ambient	GROUP B1 2 Boards Ambient	GROUP B2 2 Boards Thermal	GROUP B3 2 Boards Humidity
01	IR	DWV/Working Voltage	Thermal Aging	Humidity
02	Data Review		DWV/Working Voltage	DWV/Working Voltage
03	Thermal Aging			
04	IR			
05	Data Review			
06	Humidity			
07	IR			

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C;

Time Condition 'B' (250 hours)

Humidity = EIA-364-31, Test Condition 'B' (240 Hours)

and Method III (+25 ° C to +65 ° C @ 90%RH to 98% RH)

ambient pre-condition and delete steps 7a and 7b

IR = EIA-364-21

DWV = EIA-364-20

FLOWCHARTS Continued**MPTC-02-80-02-01-L-RA-LC / MPSC-02-80-02-7.70-01-L-V-LC**

TEST STEP	GROUP C 2 Boards Ambient	GROUP D1 2 Boards Ambient	GROUP D2 2 Boards Thermal	GROUP D3 2 Boards Humidity
01	IR	DWV/Working Voltage	Thermal Aging	Humidity
02	Data Review		DWV/Working Voltage	DWV/Working Voltage
03	Thermal Aging			
04	IR			
05	Data Review			
06	Humidity			
07	IR			

Durability/Thermal Age/Cyclic Humidity**MPTC-02-80-02-6.30-01-L-V-LC / MPSC-02-80-02-7.70-01-L-V-LC**

TEST STEP	GROUP A 210 Points (Signal) / 40 Points (Power) 100 Cycles
01	LLCR-1
02	Data Review
03	100 Cycles
04	LLCR-2
05	Data Review
06	Thermal Age
07	LLCR-3
08	Data Review
09	Cyclic Humidity
10	LLCR-4

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C;
Time Condition 'B' (250 hours)

Humidity = EIA-364-31, Test Condition 'B' (240 Hours)
and Method III (+25° C to +65° C @ 90%RH/98% RH)
ambient pre-condition and delete steps 7a and 7b

LLCR = EIA-364-23, LLCR
use Keithley 580 in the dry circuit mode, 10 mA Max

FLOWCHARTS Continued**MPTC-02-80-02-01-L-RA-LC / MPSC-02-80-02-7.70-01-L-V-LC**

TEST STEP	GROUP B 210 Points (Signal) / 40 Points (Power) 100 Cycles
01	LLCR-1
02	Data Review
03	100 Cycles
04	LLCR-2
05	Data Review
06	Thermal Age
07	LLCR-3
08	Data Review
09	Cyclic Humidity
10	LLCR-4

Gas Tight**MPTC-02-80-02-6.30-01-L-V-LC / MPSC-02-80-02-7.70-01-L-V-LC**

TEST STEP	GROUP A 210 Points (Signal) / 40 Points (Power)
01	LLCR-1
02	Gas Tight
03	LLCR-2

Gas Tight = EIA-364-36

LLCR = EIA-364-23, LLCR

use Keithley 580 in the dry circuit mode, 10 mA Max

MPTC-02-80-02-01-L-RA-LC / MPSC-02-80-02-7.70-01-L-V-LC

TEST STEP	GROUP B 210 Points (Signal) / 40 Points (Power)
01	LLCR-1
02	Gas Tight
03	LLCR-2

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL:

- 1) EIA-364-17, *Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors*.
- 2) Test Condition 4 at 105° C.
- 3) Test Time Condition B for 250 hours.
- 4) All test samples are pre-conditioned at ambient.
- 5) All test samples are exposed to environmental stressing in the mated condition.

HUMIDITY:

- 1) Reference document: EIA-364-31, *Humidity Test Procedure for Electrical Connectors*.
- 2) Test Condition B, 240 Hours.
- 3) Method III, +25° C to + 65° C, 90% to 98% Relative Humidity excluding sub-cycles 7a and 7b.
- 4) All samples are pre-conditioned at ambient.
- 5) All test samples are exposed to environmental stressing in the mated condition.

CONTACT GAPS:

- 1) Gaps above the surrounding plastic surface were measured before and after stressing the contacts (e.g. thermal aging, mechanical cycling, etc.).
- 2) Typically, all contacts on the connector are measured.

MATING/UNMATING:

- 1) Reference document: EIA-364-13, *Mating and Unmating Forces Test Procedure for Electrical Connectors*.
- 2) The full insertion position was to within 0.003" to 0.004" of the plug bottoming out in the receptacle to prevent damage to the system under test.
- 3) One of the mating parts is secured to a floating X-Y table to prevent damage during cycling.

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

- 1) Reference document: EIA-364-04, *Normal Force Test Procedure for Electrical Connectors*.
- 2) The contacts shall be tested in the connector housing.
- 3) If necessary, a "window" shall be made in the connector body to allow a probe to engage and deflect the contact at the same attitude and distance (plus 0.05 mm [0.002"]) as would occur in actual use.
- 4) The connector housing shall be placed in a holding fixture that does not interfere with or otherwise influence the contact force or deflection.
- 5) Said holding fixture shall be mounted on a floating, adjustable, X-Y table on the base of the Dillon TC², computer controlled test stand with a deflection measurement system accuracy of 5.0 µm (0.0002").
- 6) The nominal deflection rate shall be 5 mm (0.2")/minute.
- 7) Unless otherwise noted a minimum of five contacts shall be tested.
- 8) The force/deflection characteristic to load and unload each contact shall be repeated five times.
- 9) The system shall utilize the TC² software in order to acquire and record the test data.
- 10) The permanent set of each contact shall be measured within the TC² software.
- 11) The acquired data shall be graphed with the deflection data on the X-axis and the force data on the Y-axis and a print out will be stored with the Tracking Code paperwork.

INSULATION RESISTANCE (IR):

To determine the resistance of insulation materials to leakage of current through or on the surface of these materials when a DC potential is applied.

1) PROCEDURE:

- a. Reference document: EIA-364-21, *Insulation Resistance Test Procedure for Electrical Connectors*.
- b. Test Conditions:
 - i. Between Adjacent Contacts or Signal-to-Power
 - ii. Electrification Time 2.0 minutes
 - iii. Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances.

2) MEASUREMENTS:

- 3) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 5000 megohms.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

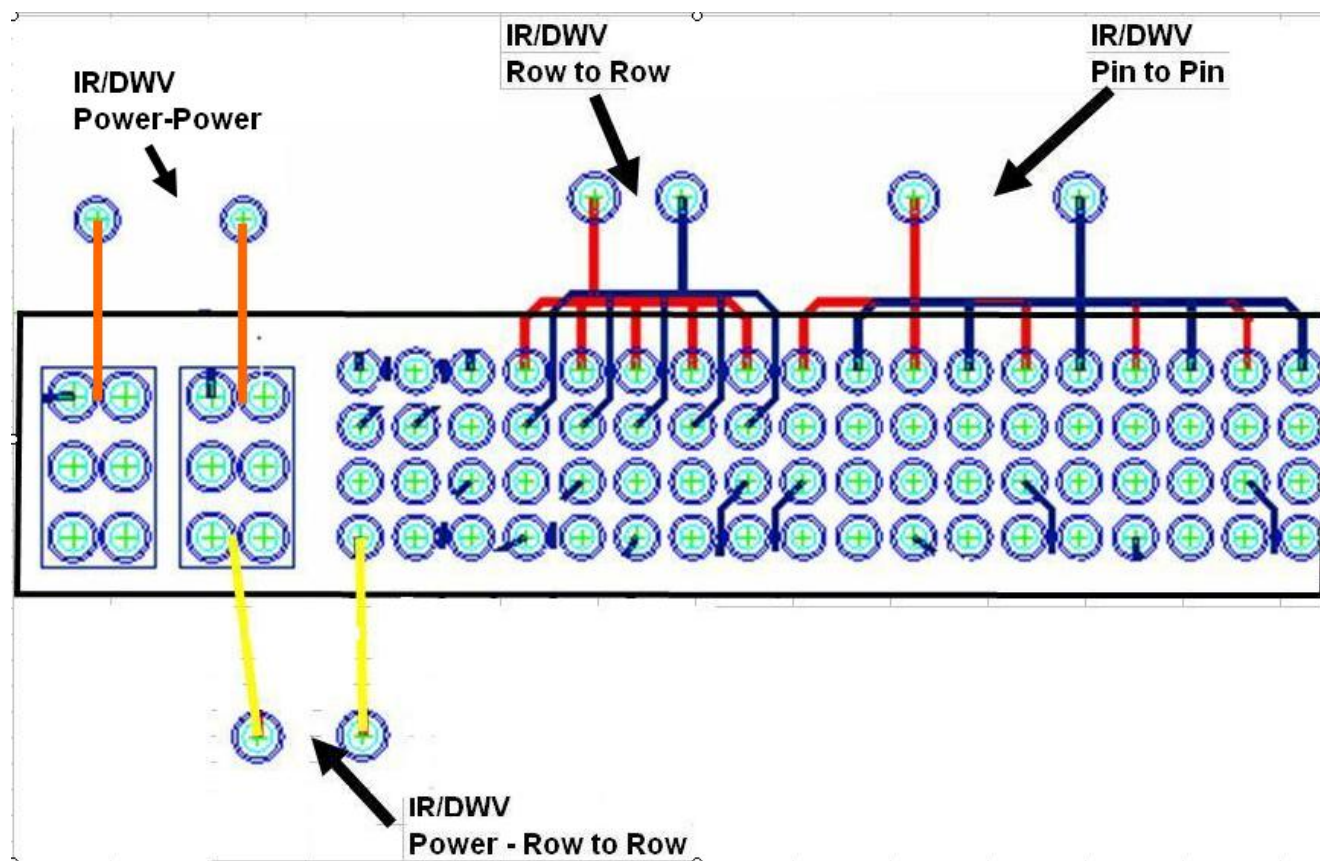
To determine if the sockets can operate at its rated voltage and withstand momentary over potentials due to switching, surges, and other similar phenomenon. Separate samples are used to evaluate the effect of environmental stresses so not to influence the readings from arcing that occurs during the measurement process.

1) PROCEDURE:

- a. Reference document: EIA-364-20, *Withstanding Voltage Test Procedure for Electrical Connectors*.
- b. Test Conditions:
 - i. Between Adjacent Contacts or Signal-to-Power
 - ii. Rate of Application 500 V/Sec
 - iii. Test Voltage (VAC) until breakdown occurs

2) MEASUREMENTS/CALCULATIONS

- a. The breakdown voltage shall be measured and recorded.
- b. The dielectric withstanding voltage shall be recorded as 75% of the minimum breakdown voltage.
- c. The working voltage shall be recorded as one-third (1/3) of the dielectric withstanding voltage (one-fourth of the breakdown voltage).

SCHEMATIC DIAGRAM OF IR/DWV MEASUREMENT LOCATIONS:

LLCR:

- 1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
 - a. $\leq +5.0$ mOhms: ----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms: ----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms: ----- Marginal
 - e. $+50.1$ to $+2000$ mOhms: ----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

GAS TIGHT:

To provide method for evaluating the ability of the contacting surfaces in preventing penetration of harsh vapors which might lead to oxide formation that may degrade the electrical performance of the contact system.

- 1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
 - a. $\leq +5.0$ mOhms: ----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms: ----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms: ----- Marginal
 - e. $+50.1$ to $+2000$ mOhms: ----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure
- 4) Procedure:
 - a. Reference document: EIA-364-36, *Test Procedure for Determination of Gas-Tight Characteristics for Electrical Connectors, Sockets and/or Contact Systems*.
 - b. Test Conditions:
 - i. Class II--- Mated pairs of contacts assembled to their plastic housings.
 - ii. Reagent grade Nitric Acid shall be used of sufficient volume to saturate the test chamber
 - iii. The ratio of the volume of the test chamber to the surface area of the acid shall be 10:1.
 - iv. The chamber shall be saturated with the vapor for at least 15 minutes before samples are added.
 - v. Exposure time, 55 to 65 minutes.
 - vi. The samples shall be no closer to the chamber walls than 1 inches and no closer to the surface of the acid than 3 inches.
 - vii. The samples shall be dried after exposure for a minimum of 1 hour.
 - viii. Drying temperature 50°C
 - ix. The final LLCR shall be conducted within 1 hour after drying.

RESULTS**Contact Gaps (RA-V) C-79-07-X**

- **Initial**
 - **Min**-----**.36 mm**
 - **Max**-----**.42 mm**
- **After 100 Cycles**
 - **Min**-----**.35 mm**
 - **Max**-----**.41 mm**
- **Thermal**
 - **Min**-----**.40 mm**
 - **Max**-----**.45 mm**
- **Humidity**
 - **Min**-----**.41 mm**
 - **Max**-----**.43 mm**

Contact Gaps (RA-V) SUB-C-214-07.70-01-X

- **Initial**
 - **Min**-----**1.45 mm**
 - **Max**-----**1.53 mm**
- **After 100 Cycles**
 - **Min**-----**1.48 mm**
 - **Max**-----**1.60 mm**
- **Thermal**
 - **Min**-----**1.48 mm**
 - **Max**-----**1.55 mm**
- **Humidity**
 - **Min**-----**1.50 mm**
 - **Max**-----**1.55 mm**

Contact Gaps (RA-V) SUB-T-1M40-01-X

- **Initial**
 - **Min**-----**1.77 mm**
 - **Max**-----**1.94 mm**
- **After 100 Cycles**
 - **Min**-----**1.75 mm**
 - **Max**-----**1.95 mm**
- **Thermal**
 - **Min**-----**1.58 mm**
 - **Max**-----**1.70 mm**
- **Humidity**
 - **Min**-----**1.60 mm**
 - **Max**-----**1.69 mm**

Contact Gaps (V-V) C-79-07-X

- **Initial**
 - **Min**-----**.38 mm**
 - **Max**-----**.41 mm**
- **After 100 Cycles**
 - **Min**-----**.38 mm**
 - **Max**-----**.42 mm**
- **Thermal**
 - **Min**-----**.40 mm**
 - **Max**-----**.44 mm**
- **Humidity**
 - **Min**-----**.41 mm**
 - **Max**-----**.43 mm**

Contact Gaps (V-V) SUB-C-214-07.70-01-X

- **Initial**
 - **Min**-----**1.46 mm**
 - **Max**-----**1.54 mm**
- **After 100 Cycles**
 - **Min**-----**1.47 mm**
 - **Max**-----**1.54 mm**
- **Thermal**
 - **Min**-----**1.47 mm**
 - **Max**-----**1.55 mm**
- **Humidity**
 - **Min**-----**1.47 mm**
 - **Max**-----**1.54 mm**

Contact Gaps (V-V) SUB-T-1M39-06.30-01-X

- **Initial**
 - **Min**-----**1.74 mm**
 - **Max**-----**1.85 mm**
- **After 100 Cycles**
 - **Min**-----**1.72 mm**
 - **Max**-----**1.84 mm**
- **Thermal**
 - **Min**-----**1.58 mm**
 - **Max**-----**1.69 mm**
- **Humidity**
 - **Min**-----**1.58 mm**
 - **Max**-----**1.65 mm**

Mating – Unmating Forces (RA-V)

- **Initial**
 - **Mating**
 - **Min** -----12.9 Lbs.
 - **Max** -----15.6 Lbs.
 - **Unmating**
 - **Min** -----11.8 Lbs.
 - **Max** -----13.9 Lbs.
- **After 100 Cycles**
 - **Mating**
 - **Min** -----18.4 Lbs.
 - **Max** -----23.6 Lbs.
 - **Unmating**
 - **Min** -----14.6 Lbs.
 - **Max** -----19.7 Lbs.
- **Thermal**
 - **Mating**
 - **Min** -----10.9 Lbs.
 - **Max** -----12.7 Lbs.
 - **Unmating**
 - **Min** -----9.5 Lbs.
 - **Max** -----11.0 Lbs.
- **Humidity**
 - **Mating**
 - **Min** -----12.5 Lbs.
 - **Max** -----14.6 Lbs.
 - **Unmating**
 - **Min** -----11.7 Lbs.
 - **Max** -----14.1 Lbs.

Mating – Unmating Forces (V-V)

- **Initial**
 - **Mating**
 - **Min** -----11.5 Lbs.
 - **Max** -----17.1 Lbs.
 - **Unmating**
 - **Min** -----10.0 Lbs.
 - **Max** -----15.3 Lbs.
- **After 100 Cycles**
 - **Mating**
 - **Min** -----17.6 Lbs.
 - **Max** -----25.5 Lbs.
 - **Unmating**
 - **Min** -----16.6 Lbs.
 - **Max** -----22.7 Lbs.
- **Thermal**
 - **Mating**
 - **Min** -----10.0 Lbs.
 - **Max** -----12.3 Lbs.
 - **Unmating**
 - **Min** ----- 8.4 Lbs.
 - **Max** -----11.5 Lbs.
- **Humidity**
 - **Mating**
 - **Min** -----12.0 Lbs.
 - **Max** -----15.7 Lbs.
 - **Unmating**
 - **Min** -----11.5 Lbs.
 - **Max** -----14.6 Lbs.

NORMAL FORCE (tested on power contacts only)**Normal Force at .002 deflection (RA-V)**

- **Initial**
 - o Min-----75.6 g Set -----.0000
 - o Max -----87.8 g Set -----.0006
- **Thermal**
 - o Min-----40.3 g Set -----.0004
 - o Max -----85.1 g Set -----.0012

Normal Force at .004 deflection (RA-V)

- **Initial**
 - o Min-----161.2 g
 - o Max -----178.9 g
- **Thermal**
 - o Min-----131.3 g
 - o Max -----176.2 g

Normal Force at .006 deflection (RA-V)

- **Initial**
 - o Min-----242.8 g
 - o Max -----269.9 g
- **Thermal**
 - o Min-----211.5 g
 - o Max -----264.5 g

Normal Force at .008 deflection (RA-V)

- **Initial**
 - o Min-----321.6 g
 - o Max -----356.9 g
- **Thermal**
 - o Min-----299.8 g
 - o Max -----358.3 g

Normal Force at .010 deflection (RA-V)

- **Initial**
 - o Min-----397.7 g
 - o Max -----437.1 g
- **Thermal**
 - o Min-----371.9 g
 - o Max -----442.5 g

Normal Force at .002 deflection (V-V)• **Initial**

○ **Min**-----78.3 g **Set** -----.0003
○ **Max** -----91.9 g **Set** -----.0006

• **Thermal**

○ **Min**-----79.7 g **Set** -----.0005
○ **Max** -----89.2 g **Set** -----.0007

Normal Force at .004 deflection (V-V)• **Initial**

○ **Min**-----161.2 g
○ **Max** -----188.4 g

• **Thermal**

○ **Min**-----168.0 g
○ **Max** -----177.5 g

Normal Force at .006 deflection (V-V)• **Initial**

○ **Min**-----240.0 g
○ **Max** -----365.9 g

• **Thermal**

○ **Min**-----252.3 g
○ **Max** -----261.8 g

Normal Force at .008 deflection (V-V)• **Initial**

○ **Min**-----313.4 g
○ **Max** -----369.1 g

• **Thermal**

○ **Min**-----331.1 g
○ **Max** -----348.8 g

Normal Force at .010 deflection (V-V)• **Initial**

○ **Min**-----388.2 g
○ **Max** -----439.8 g

• **Thermal**

○ **Min**-----395.0 g
○ **Max** -----430.3 g

Insulation Resistance, (All Passed)**Insulation Resistance minimums, Row to Row**

- **Initial**
 - Mated-----100,000 Meg Ω
 - Unmated -----100,000 Meg Ω
- **Thermal**
 - Mated-----100,000 Meg Ω
 - Unmated -----100,000 Meg Ω
- **Humidity**
 - Mated-----100,000 Meg Ω
 - Unmated -----100,000 Meg Ω

Insulation Resistance minimums, Pin to Pin

- **Initial**
 - Mated-----100,000 Meg Ω
 - Unmated -----100,000 Meg Ω
- **Thermal**
 - Mated-----100,000 Meg Ω
 - Unmated -----100,000 Meg Ω
- **Humidity**
 - Mated-----7,000 Meg Ω
 - Unmated -----25,000 Meg Ω

Dielectric Withstanding Voltage**Dielectric Withstanding Voltage minimums, Row to Row**

- **Initial**
 - Breakdown
 - Mated ----- 1400 VAC
 - Unmated ----- 1300 VAC
 - DWV
 - Mated ----- 1050 VAC
 - Unmated -----975 VAC
 - Working voltage
 - Mated -----350 VAC
 - Unmated -----325 VAC
- **Thermal**
 - Breakdown
 - Mated ----- 1250 VAC
 - Unmated ----- 1300 VAC
 - DWV
 - Mated -----938 VAC
 - Unmated -----975 VAC
 - Working voltage
 - Mated -----313 VAC
 - Unmated -----325 VAC
- **Humidity**
 - Breakdown
 - Mated ----- 1200 VAC
 - Unmated ----- 1200 VAC
 - DWV
 - Mated -----900 VAC
 - Unmated -----900 VAC

- o **Working voltage**
 - **Mated -----300 VAC**
 - **Unmated -----300 VAC**

Dielectric Withstanding Voltage minimums, Pin to Pin

- **Initial**

- o **Breakdown**
 - **Mated ----- 1700 VAC**
 - **Unmated ----- 1750 VAC**
- o **DWV**
 - **Mated ----- 1275 VAC**
 - **Unmated ----- 1313 VAC**
- o **Working voltage**
 - **Mated -----425 VAC**
 - **Unmated -----438 VAC**

- **Thermal**

- o **Breakdown**
 - **Mated ----- 1800 VAC**
 - **Unmated ----- 1800 VAC**
- o **DWV**
 - **Mated ----- 1350 VAC**
 - **Unmated ----- 1350 VAC**
- o **Working voltage**
 - **Mated -----450 VAC**
 - **Unmated -----450 VAC**

- **Humidity**

- o **Breakdown**
 - **Mated ----- 1200 VAC**
 - **Unmated ----- 1950 VAC**
- o **DWV**
 - **Mated -----900 VAC**
 - **Unmated ----- 1463 VAC**
- o **Working voltage**
 - **Mated -----300 VAC**
 - **Unmated -----488 VAC**

LLCR Durability (210 LLCR test points signal/ 40 LLCR test points power), RA-V

- **Initial** ----- 12.2 mOhms Max
- **Durability, 100 Cycles**
 - o <= +5.0 mOhms ----- 250 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure
- **Thermal**
 - o <= +5.0 mOhms ----- 250 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure
 - o
- **Humidity**
 - o <= +5.0 mOhms ----- 250 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure

LLCR Durability (210 LLCR test points signal/ 40 LLCR test points power), V-V

- **Initial** ----- 7.2 mOhms Max
- **Durability, 100 Cycles**
 - o <= +5.0 mOhms ----- 250 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure
- **Thermal**
 - o <= +5.0 mOhms ----- 250 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure
 - o
- **Humidity**
 - o <= +5.0 mOhms ----- 250 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure

LLCR Gas Tight (210 LLCR test points signal/ 40 LLCR test points power), RA-V

- **Initial** ----- 12.8 mOhms Max
- **Gas-Tight**
 - o **<= +5.0 mOhms** ----- 250 Points ----- Stable
 - o **+5.1 to +10.0 mOhms** ----- 0 Points ----- Minor
 - o **+10.1 to +15.0 mOhms** ----- 0 Points ----- Acceptable
 - o **+15.1 to +50.0 mOhms** ----- 0 Points ----- Marginal
 - o **+50.1 to +2000 mOhms** ----- 0 Points ----- Unstable
 - o **>+2000 mOhms** ----- 0 Points ----- Open Failure

LLCR Gas Tight (210 LLCR test points signal/ 40 LLCR test points power), V-V

- **Initial** ----- 7.0 mOhms Max
- **Gas-Tight**
 - o **<= +5.0 mOhms** ----- 250 Points ----- Stable
 - o **+5.1 to +10.0 mOhms** ----- 0 Points ----- Minor
 - o **+10.1 to +15.0 mOhms** ----- 0 Points ----- Acceptable
 - o **+15.1 to +50.0 mOhms** ----- 0 Points ----- Marginal
 - o **+50.1 to +2000 mOhms** ----- 0 Points ----- Unstable
 - o **>+2000 mOhms** ----- 0 Points ----- Open Failure

DATA SUMMARIES**CONTACT GAPS:****(RA-V) C-79-07-X**

Initial		Mating	
Measurements in millimeters		Measurements in millimeters	
Minimum	0.3600	Minimum	0.3520
Maximum	0.4160	Maximum	0.4100
Average	0.3933	Average	0.3982
St. Dev.	0.0068	St. Dev.	0.0082
Count	80	Count	80
Thermal		Humidity	
Measurements in millimeters		Measurements in millimeters	
Minimum	0.4000	Minimum	0.4080
Maximum	0.4500	Maximum	0.4320
Average	0.4221	Average	0.4214
St. Dev.	0.0074	St. Dev.	0.0049
Count	80	Count	80

(RA-V) SUB-C-214-07.70-01-X

Initial		Mating	
Measurements in millimeters		Measurements in millimeters	
Minimum	1.4540	Minimum	1.4840
Maximum	1.5320	Maximum	1.6020
Average	1.5011	Average	1.5148
St. Dev.	0.0172	St. Dev.	0.0187
Count	32	Count	32
Thermal		Humidity	
Measurements in millimeters		Measurements in millimeters	
Minimum	1.4780	Minimum	1.5000
Maximum	1.5460	Maximum	1.5540
Average	1.5151	Average	1.5214
St. Dev.	0.0141	St. Dev.	0.0099
Count	32	Count	32

(RA-V) SUB-T-1M40-01-X

Initial		Mating	
Measurements in millimeters		Measurements in millimeters	
Minimum	1.7660	Minimum	1.7540
Maximum	1.9420	Maximum	1.9520
Average	1.8604	Average	1.8540
St. Dev.	0.0395	St. Dev.	0.0461
Count	32	Count	32
Thermal		Humidity	
Measurements in millimeters		Measurements in millimeters	
Minimum	1.5780	Minimum	1.6000
Maximum	1.7040	Maximum	1.6900
Average	1.6492	Average	1.6442
St. Dev.	0.0288	St. Dev.	0.0195
Count	32	Count	32

DATA SUMMARIES Continued**(V-V) C-79-07-X**

Initial		Mating	
Measurements in millimeters		Measurements in millimeters	
Minimum	0.3760	Minimum	0.3820
Maximum	0.4080	Maximum	0.4180
Average	0.3931	Average	0.3984
St. Dev.	0.0051	St. Dev.	0.0074
Count	80	Count	80
Thermal		Humidity	
Measurements in millimeters		Measurements in millimeters	
Minimum	0.4040	Minimum	0.4080
Maximum	0.4420	Maximum	0.4340
Average	0.4221	Average	0.4194
St. Dev.	0.0059	St. Dev.	0.0041
Count	80	Count	80

(V-V) SUB-C-214-07.70-01-X

Initial		Mating	
Measurements in millimeters		Measurements in millimeters	
Minimum	1.4640	Minimum	1.4700
Maximum	1.5420	Maximum	1.5380
Average	1.5001	Average	1.5086
St. Dev.	0.0198	St. Dev.	0.0157
Count	32	Count	32
Thermal		Humidity	
Measurements in millimeters		Measurements in millimeters	
Minimum	1.4680	Minimum	1.4720
Maximum	1.5500	Maximum	1.5400
Average	1.5083	Average	1.5081
St. Dev.	0.0203	St. Dev.	0.0152
Count	32	Count	32

(V-V) SUB-T-1M39-06.30-01-X

Initial		Mating	
Measurements in inches		Measurements in inches	
Minimum	1.7420	Minimum	1.7160
Maximum	1.8460	Maximum	1.8440
Average	1.8146	Average	1.7770
St. Dev.	0.0234	St. Dev.	0.0228
Count	32	Count	32
Thermal		Humidity	
Measurements in inches		Measurements in inches	
Minimum	1.5780	Minimum	1.5840
Maximum	1.6860	Maximum	1.6460
Average	1.6268	Average	1.6054
St. Dev.	0.0157	St. Dev.	0.0133
Count	32	Count	32

DATA SUMMARIES Continued**MATING/UNMATING: RA-V**

	Initial				After 100 Cycles			
	Mating		Unmating		Mating		Unmating	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	207.0	12.94	189.4	11.84	293.6	18.35	233.9	14.62
Maximum	249.1	15.6	221.9	13.9	377.0	23.6	315.5	19.7
Average	223.6	14.0	208.6	13.0	326.8	20.4	281.6	17.6
	After Thermal				After Humidity			
	Mating		Unmating		Mating		Unmating	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	174.4	10.90	152.5	9.53	199.7	12.48	187.4	11.71
Maximum	202.4	12.7	175.4	11.0	233.6	14.6	225.6	14.1
Average	191.2	11.9	164.2	10.3	216.0	13.5	200.0	12.5

MATING/UNMATING: RA-V

	Initial				After 100 Cycles			
	Mating		Unmating		Mating		Unmating	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	183.8	11.49	160.0	10.00	281.1	17.57	266.2	16.64
Maximum	273.1	17.1	244.0	15.3	407.2	25.5	362.4	22.7
Average	213.8	13.4	190.2	11.9	341.7	21.4	315.5	19.7
	After Thermal				After Humidity			
	Mating		Unmating		Mating		Unmating	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	159.5	9.97	133.9	8.37	192.0	12.00	183.2	11.45
Maximum	196.8	12.3	183.7	11.5	251.2	15.7	233.1	14.6
Average	177.5	11.1	159.1	9.9	227.1	14.2	207.8	13.0

DATA SUMMARIES Continued**NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):**

- 1) Calibrated force gauges are used along with computer controlled positioning equipment.
- 2) For Normal force 7-10 measurements are taken and the averages reported.

RA-V:

Initial	Deflections in inches Forces in Grams					
	<u>0.002</u>	<u>0.004</u>	<u>0.006</u>	<u>0.008</u>	<u>0.010</u>	<u>SET</u>
Averages	81.21	168.39	251.29	332.07	408.76	0.0004
Min	75.60	161.20	242.80	321.60	397.70	0.0000
Max	87.80	178.90	269.90	356.90	437.10	0.0006
St. Dev	5.04	7.10	9.16	12.28	13.48	0.0002
Count	7	7	7	7	7	7

Thermal	Deflections in inches, Forces in Grams					
	<u>0.002</u>	<u>0.004</u>	<u>0.006</u>	<u>0.008</u>	<u>0.010</u>	<u>SET</u>
Averages	69.57	157.33	241.00	327.01	405.83	0.0007
Min	40.30	131.30	211.50	299.80	371.90	0.0004
Max	85.10	176.20	264.50	358.30	442.50	0.0012
St. Dev	18.69	15.92	18.90	21.90	25.25	0.0003
Count	7	7	7	7	7	7

V-V:

Initial	Deflections in inches Forces in Grams					
	<u>0.002</u>	<u>0.004</u>	<u>0.006</u>	<u>0.008</u>	<u>0.010</u>	<u>SET</u>
Averages	87.83	177.16	275.30	345.86	419.60	0.0005
Min	78.30	161.20	240.00	313.40	388.20	0.0003
Max	91.90	188.40	365.90	369.10	439.80	0.0006
St. Dev	4.05	8.53	39.25	19.77	19.43	0.0001
Count	8	8	8	8	8	8

Thermal	Deflections in inches, Forces in Grams					
	<u>0.002</u>	<u>0.004</u>	<u>0.006</u>	<u>0.008</u>	<u>0.010</u>	<u>SET</u>
Averages	84.73	173.04	256.54	336.73	407.59	0.0006
Min	79.70	168.00	252.30	331.10	395.00	0.0005
Max	89.20	177.50	261.80	348.80	430.30	0.0007
St. Dev	3.01	3.39	3.95	6.87	11.94	0.0001
Count	7	7	7	7	7	7

DATA SUMMARIES Continued**INSULATION RESISTANCE (IR): Units are in Mohms**

	Row to Row	
	Mated	Unmated
Minimum	MPSC/MPTC	MPSC
Initial	100000	100000
Thermal	100000	100000
Humidity	100000	100000

	Pin to Pin	
	Mated	Unmated
Minimum	MPSC/MPTC	MPSC
Initial	100000	100000
Thermal	100000	100000
Humidity	7000	25000

DIELECTRIC WITHSTANDING VOLTAGE (DWV): Units are in VAC

		Row to Row	
		Mated	Unmated
Minimum		MPSC/MPTC	MPSC
Breakdown Voltage	Initial	1400	1300
	Thermal	1250	1300
	Humidity	1200	1200
DWV	Initial	1050	975
	Thermal	938	975
	Humidity	900	900
Working Voltage	Initial	350	325
	Thermal	313	325
	Humidity	300	300

		Pin to Pin	
		Mated	Unmated
Minimum		MPSC/MPTC	MPSC
Breakdown Voltage	Initial	1700	1750
	Thermal	1800	1800
	Humidity	1200	1950
DWV	Initial	1275	1313
	Thermal	1350	1350
	Humidity	900	1463
Working Voltage	Initial	425	438
	Thermal	450	450
	Humidity	300	488

DATA SUMMARIES Continued**LLCR:**

- 1) A total of 250 points were measured.
- 2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. $\leq +5.0$ mOhms: ----- Stable
 - b. $+5.1$ to $+10.0$ mOhms: ----- Minor
 - c. $+10.1$ to $+15.0$ mOhms: ----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms: ----- Marginal
 - e. $+50.1$ to $+2000$ mOhms ----- Unstable
 - f. $>+2000$ mOhms: ----- Open Failure

RA-V:**SIGNAL**

mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	8.0	-0.3	-0.3	-0.2
St. Dev.	2.0	0.3	0.3	0.3
Min	5.2	-1.4	-1.5	-1.3
Max	12.2	0.3	0.5	0.9
Count	210	210	210	210

POWER

mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	0.4	-0.1	0.0	0.0
St. Dev.	0.1	0.1	0.1	0.2
Min	0.2	-0.4	-0.4	-0.4
Max	0.8	0.0	0.3	1.3
Count	40	40	40	40

V-V:**SIGNAL**

mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	6.3	-0.2	0.0	0.0
St. Dev.	0.3	0.2	0.3	0.3
Min	5.6	-1.0	-1.1	-0.9
Max	7.2	0.3	0.8	1.9
Count	210	210	210	210

DATA SUMMARIES Continued**POWER**

mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	0.4	0.0	0.0	0.0
St. Dev.	0.1	0.1	0.1	0.1
Min	0.2	-0.3	-0.1	-0.2
Max	0.7	0.4	0.2	0.3
Count	40	40	40	40

GAS TIGHT:

- 1) A total of 250 points were measured.
- 2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. $\leq +5.0$ mOhms: ----- Stable
 - b. $+5.1$ to $+10.0$ mOhms: ----- Minor
 - c. $+10.1$ to $+15.0$ mOhms: ----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms: ----- Marginal
 - e. $+50.1$ to $+2000$ mOhms: ----- Unstable
 - f. $>+2000$ mOhms: ----- Open Failure

RA-V:

mOhm values	Actual Initial	Delta Gas Tight	Actual Initial	Delta Initial
Average	7.9	0.0	0.4	-0.1
St. Dev.	1.9	0.2	0.1	0.1
Min	5.3	-1.0	0.3	-0.5
Max	12.8	0.6	0.7	0.2
Count	210	210	40	40

V-V:

mOhm values	Actual Initial	Delta Gas Tight
Average	5.3	0.0
St. Dev.	2.2	0.2
Min	0.3	-0.7
Max	7.0	0.5
Count	250	250

DATA**CONTACT GAPS: (RA-V) C-79-07-X**

Initial Measurements in millimeters						
Sample#	B1	B2	B3	B4		
1	0.398	0.38	0.388	0.394		
2	0.39	0.384	0.392	0.384		
3	0.416	0.39	0.392	0.388		
4	0.398	0.398	0.396	0.398		
5	0.4	0.392	0.386	0.39		
6	0.396	0.398	0.38	0.39		
7	0.404	0.392	0.384	0.394		
8	0.398	0.392	0.386	0.39		
9	0.394	0.36	0.396	0.398		
10	0.388	0.398	0.396	0.392		
11	0.39	0.39	0.398	0.394		
12	0.396	0.39	0.396	0.39		
13	0.404	0.388	0.388	0.388		
14	0.406	0.39	0.408	0.39		
15	0.398	0.392	0.39	0.396		
16	0.398	0.394	0.394	0.384		
17	0.392	0.396	0.394	0.4		
18	0.4	0.396	0.41	0.384		
19	0.4	0.388	0.396	0.384		
20	0.396	0.398	0.398	0.396		

Mating Measurements in millimeters						
Sample#	B1	B2	B3	B4		
1	0.408	0.394	0.4	0.406		
2	0.408	0.398	0.404	0.402		
3	0.404	0.41	0.4	0.394		
4	0.404	0.388	0.394	0.394		
5	0.406	0.394	0.41	0.402		
6	0.4	0.39	0.378	0.402		
7	0.4	0.398	0.4	0.398		
8	0.4	0.404	0.408	0.402		
9	0.402	0.39	0.394	0.4		
10	0.41	0.384	0.372	0.404		
11	0.396	0.404	0.406	0.394		
12	0.396	0.41	0.402	0.404		
13	0.4	0.396	0.394	0.398		
14	0.398	0.388	0.402	0.38		
15	0.4	0.394	0.4	0.396		
16	0.4	0.388	0.408	0.392		
17	0.396	0.39	0.406	0.41		
18	0.4	0.4	0.408	0.394		
19	0.394	0.392	0.408	0.398		
20	0.402	0.404	0.352	0.4		

DATA Continued**Thermal
Measurements in
millimeters**

Sample#	B1	B2	B3	B4
1	0.4260	0.4160	0.4180	0.4200
2	0.4240	0.4200	0.4240	0.4160
3	0.4300	0.4180	0.4120	0.4120
4	0.4200	0.4200	0.4180	0.4280
5	0.4240	0.4300	0.4120	0.4300
6	0.4140	0.4140	0.4500	0.4260
7	0.4220	0.4220	0.4240	0.4320
8	0.4220	0.4120	0.4240	0.4200
9	0.4200	0.4080	0.4380	0.4180
10	0.4300	0.4280	0.4280	0.4260
11	0.4220	0.4300	0.4180	0.4180
12	0.4280	0.4200	0.4280	0.4140
13	0.4240	0.4180	0.4240	0.4060
14	0.4440	0.4180	0.4160	0.4220
15	0.4240	0.4220	0.4180	0.4260
16	0.4240	0.4180	0.4320	0.4180
17	0.4000	0.4160	0.4260	0.4300
18	0.4200	0.4260	0.4220	0.4180
19	0.4160	0.4240	0.4220	0.4280
20	0.4180	0.4220	0.4280	0.4220

**Humidity
Measurements in
millimeters**

Sample#	B1	B2	B3	B4
1	0.4240	0.4240	0.4240	0.4240
2	0.4160	0.4220	0.4240	0.4240
3	0.4180	0.4260	0.4220	0.4180
4	0.4200	0.4240	0.4220	0.4180
5	0.4200	0.4180	0.4180	0.4180
6	0.4220	0.4240	0.4180	0.4140
7	0.4180	0.4160	0.4240	0.4240
8	0.4260	0.4140	0.4200	0.4220
9	0.4160	0.4220	0.4300	0.4180
10	0.4220	0.4160	0.4260	0.4160
11	0.4220	0.4240	0.4240	0.4080
12	0.4220	0.4280	0.4280	0.4220
13	0.4280	0.4300	0.4240	0.4220
14	0.4220	0.4240	0.4240	0.4180
15	0.4120	0.4200	0.4180	0.4260
16	0.4280	0.4200	0.4240	0.4320
17	0.4220	0.4240	0.4300	0.4240
18	0.4280	0.4240	0.4120	0.4140
19	0.4200	0.4280	0.4160	0.4260
20	0.4220	0.4160	0.4120	0.4100

DATA Continued**CONTACT GAPS: (RA-V) SUB-C-214-07.70-01-X**

Initial													
Measurements in millimeters													
Sample#	B1		B2		B3		B4		B5		B6		B8
1	1.498		1.518		1.518		1.53		1.474		1.512		1.506
2	1.506		1.504		1.514		1.48		1.506		1.49		1.454
3	1.502		1.486		1.496		1.498		1.502		1.502		1.482
4	1.492		1.508		1.522		1.52		1.532		1.48		1.492

Mating													
Measurements in millimeters													
Sample#	B1		B2		B3		B4		B5		B6		B8
1	1.504		1.552		1.53		1.532		1.492		1.514		1.508
2	1.504		1.516		1.536		1.486		1.512		1.508		1.492
3	1.504		1.496		1.508		1.506		1.514		1.51		1.502
4	1.522		1.5		1.552		1.514		1.524		1.496		1.484

Thermal													
Measurements in millimeters													
Sample#	B1		B2		B3		B4		B5		B6		B8
1	1.5100		1.5360		1.5300		1.5300		1.5000		1.5200		1.5140
2	1.4840		1.5040		1.5280		1.5060		1.5460		1.4940		1.4780
3	1.5180		1.5200		1.5240		1.5140		1.5240		1.5000		1.5120
4	1.5100		1.5100		1.5120		1.5120		1.5320		1.5240		1.5100

Humidity													
Measurements in millimeters													
Sample#	B1		B2		B3		B4		B5		B6		B8
1	1.5100		1.5360		1.5300		1.5440		1.5100		1.5200		1.5140
2	1.5120		1.5080		1.5200		1.5000		1.5400		1.5120		1.5080
3	1.5180		1.5200		1.5240		1.5280		1.5260		1.5200		1.5160
4	1.5120		1.5100		1.5340		1.5180		1.5360		1.5240		1.5100

CONTACT GAPS: (RA-V) SUB-T-1M40-01-X

Initial													
Measurements in millimeters													
Sample#	B1		B2		B3		B4		B5		B6		B8
1	1.826		1.766		1.862		1.882		1.888		1.876		1.862
2	1.856		1.808		1.768		1.922		1.856		1.876		1.914
3	1.914		1.888		1.88		1.868		1.884		1.82		1.864
4	1.83		1.8		1.916		1.874		1.902		1.896		1.942

DATA Continued**Mating
Measurements in
millimeters**

Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.88		1.816		1.882		1.898		1.866		1.866		1.882		1.904
2	1.916		1.902		1.87		1.858		1.886		1.786		1.952		1.812
3	1.85		1.836		1.772		1.92		1.872		1.894		1.784		1.834
4	1.804		1.78		1.852		1.882		1.89		1.81		1.754		1.818

**Thermal
Measurements in
millimeters**

Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.6280	X	1.6180	X	1.7040	X	1.6460	X	1.6640	X	1.6560	X	1.6200	X	1.6260
2	1.6820	X	1.6280	X	1.6100	X	1.6900	X	1.6780	X	1.6740	X	1.6660	X	1.7020
3	1.6740	X	1.6600	X	1.6360	X	1.6520	X	1.6700	X	1.6080	X	1.6620	X	1.6280
4	1.6200	X	1.5980	X	1.6540	X	1.6680	X	1.6500	X	1.5780	X	1.6660	X	1.6580

**Humidity
Measurements in
millimeters**

Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.6260	X	1.6160	X	1.6620	X	1.6420	X	1.6640	X	1.6500	X	1.6160	X	1.6500
2	1.6800	X	1.6260	X	1.6100	X	1.6760	X	1.6620	X	1.6520	X	1.6160	X	1.6900
3	1.6700	X	1.6600	X	1.6500	X	1.6500	X	1.6560	X	1.6260	X	1.6340	X	1.6260
4	1.6180	X	1.6000	X	1.6560	X	1.6340	X	1.6600	X	1.6520	X	1.6440	X	1.6400

DATA Continued**CONTACT GAPS: (V-V) C-79-07-X**

Initial						
Measurements in millimeters						
Sample#	B1	B2	B3	B4		
1	0.394	0.394	0.388	0.394		
2	0.39	0.386	0.394	0.398		
3	0.396	0.396	0.39	0.392		
4	0.398	0.394	0.392	0.4		
5	0.398	0.396	0.386	0.396		
6	0.386	0.388	0.398	0.392		
7	0.398	0.392	0.398	0.39		
8	0.392	0.394	0.404	0.392		
9	0.39	0.39	0.4	0.398		
10	0.384	0.392	0.398	0.39		
11	0.394	0.39	0.398	0.39		
12	0.396	0.392	0.392	0.388		
13	0.394	0.39	0.392	0.396		
14	0.394	0.408	0.388	0.396		
15	0.388	0.388	0.396	0.388		
16	0.392	0.392	0.404	0.392		
17	0.396	0.392	0.392	0.376		
18	0.398	0.392	0.386	0.386		
19	0.398	0.398	0.398	0.392		
20	0.384	0.386	0.398	0.398		

Mating						
Measurements in millimeters						
Sample#	B1	B2	B3	B4		
1	0.39	0.404	0.398	0.4		
2	0.4	0.402	0.39	0.404		
3	0.392	0.41	0.406	0.404		
4	0.398	0.402	0.406	0.39		
5	0.392	0.402	0.404	0.4		
6	0.382	0.396	0.408	0.4		
7	0.39	0.398	0.39	0.398		
8	0.4	0.404	0.396	0.392		
9	0.392	0.398	0.4	0.392		
10	0.384	0.402	0.41	0.398		
11	0.392	0.4	0.412	0.39		
12	0.4	0.406	0.4	0.392		
13	0.4	0.404	0.418	0.404		
14	0.382	0.39	0.396	0.408		
15	0.386	0.398	0.402	0.394		
16	0.412	0.41	0.4	0.384		
17	0.406	0.4	0.39	0.39		
18	0.39	0.396	0.392	0.402		
19	0.402	0.388	0.392	0.388		
20	0.404	0.412	0.4	0.412		

DATA Continued**Thermal
Measurements in
millimeters**

<u>Sample#</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>
1	0.4160	0.4180	0.4160	0.4180
2	0.4140	0.4240	0.4200	0.4340
3	0.4160	0.4300	0.4240	0.4160
4	0.4160	0.4220	0.4260	0.4200
5	0.4180	0.4360	0.4280	0.4160
6	0.4240	0.4300	0.4200	0.4180
7	0.4200	0.4200	0.4180	0.4200
8	0.4160	0.4280	0.4260	0.4200
9	0.4140	0.4320	0.4260	0.4140
10	0.4240	0.4200	0.4280	0.4200
11	0.4200	0.4320	0.4280	0.4140
12	0.4160	0.4160	0.4280	0.4220
13	0.4200	0.4200	0.4160	0.4180
14	0.4280	0.4160	0.4280	0.4200
15	0.4160	0.4420	0.4260	0.4180
16	0.4200	0.4260	0.4260	0.4040
17	0.4280	0.4180	0.4140	0.4240
18	0.4260	0.4160	0.4240	0.4240
19	0.4240	0.4180	0.4280	0.4320
20	0.4280	0.4300	0.4200	0.4280

**Humidity
Measurements in
millimeters**

<u>Sample#</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>
1	0.4140	0.4220	0.4220	0.4200
2	0.4140	0.4200	0.4220	0.4240
3	0.4140	0.4140	0.4240	0.4220
4	0.4140	0.4180	0.4220	0.4180
5	0.4220	0.4180	0.4260	0.4120
6	0.4140	0.4200	0.4240	0.4160
7	0.4080	0.4160	0.4260	0.4180
8	0.4180	0.4240	0.4240	0.4200
9	0.4160	0.4200	0.4200	0.4120
10	0.4180	0.4180	0.4300	0.4160
11	0.4140	0.4180	0.4240	0.4160
12	0.4160	0.4260	0.4300	0.4240
13	0.4140	0.4200	0.4260	0.4140
14	0.4140	0.4260	0.4200	0.4160
15	0.4080	0.4220	0.4120	0.4100
16	0.4140	0.4240	0.4280	0.4200
17	0.4140	0.4200	0.4200	0.4220
18	0.4200	0.4160	0.4180	0.4220
19	0.4140	0.4240	0.4260	0.4160
20	0.4220	0.4200	0.4340	0.4280

DATA Continued**CONTACT GAPS: (V-V) SUB-C-214-07.70-01-X**

Initial Measurements in millimeters															
Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.478		1.506		1.508		1.482		1.52		1.498		1.518		1.524
2	1.464		1.47		1.508		1.49		1.484		1.528		1.516		1.48
3	1.504		1.504		1.486		1.51		1.48		1.472		1.478		1.486
4	1.5		1.5		1.52		1.524		1.506		1.542		1.516		1.5

Mating															
Measurements in millimeters															
Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.492		1.518		1.496		1.502		1.532		1.53		1.514		1.532
2	1.482		1.47		1.51		1.486		1.498		1.506		1.506		1.476
3	1.5		1.538		1.506		1.51		1.522		1.492		1.508		1.508
4	1.498		1.508		1.52		1.532		1.528		1.518		1.512		1.524

Thermal															
Measurements in millimeters															
Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.5400		1.5020		1.4780		1.4840		1.5480		1.4940		1.5320		1.5160
2	1.5040		1.4760		1.4920		1.4680		1.4840		1.5320		1.5120		1.4680
3	1.5280		1.4880		1.4920		1.5020		1.5340		1.4920		1.5200		1.5200
4	1.5000		1.4980		1.5040		1.5500		1.5240		1.5320		1.5220		1.5280

Humidity															
Measurements in millimeters															
Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.5140		1.5080		1.4780		1.5060		1.5240		1.5080		1.5320		1.5240
2	1.4800		1.4720		1.5060		1.4760		1.4840		1.5260		1.5160		1.4900
3	1.5140		1.4980		1.4960		1.5100		1.5160		1.5100		1.5200		1.5220
4	1.5060		1.4900		1.5100		1.5120		1.5140		1.5400		1.5220		1.5360

CONTACT GAPS: (V-V) SUB-T-1M39-06.30-01-X

Initial								
Measurements in inches								
Sample#	B1	B2	B3	B4	B5	B6	B7	B8
1	1.82	1.824	1.824	1.764	1.784	1.844	1.838	1.814
2	1.786	1.742	1.742	1.806	1.832	1.826	1.846	1.834
3	1.846	1.804	1.804	1.814	1.838	1.84	1.816	1.836
4	1.814	1.81	1.81	1.812	1.842	1.81	1.824	1.82

DATA Continued**Mating****Measurements in inches**

Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.716	X	1.794		1.754		1.782		1.756		1.77		1.796		1.744
2	1.766		1.802		1.762		1.76		1.844		1.804		1.744		1.758
3	1.778		1.792		1.778		1.772		1.772		1.798		1.738	X	1.766
4	1.778		1.784		1.824		1.78		1.78		1.826		1.762		1.784

Thermal**Measurements in inches**

Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.6100	X	1.6300	X	1.6360	X	1.6480	X	1.6300	X	1.6240	X	1.6620	X	1.5780
2	1.6300	X	1.6040	X	1.6260	X	1.6180	X	1.6500	X	1.6440	X	1.6640	X	1.5960
3	1.6100	X	1.6040	X	1.6460	X	1.5840	X	1.6100	X	1.6240	X	1.6860	X	1.6140
4	1.6000	X	1.6020	X	1.6440	X	1.6220	X	1.6220	X	1.6700	X	1.6760	X	1.5940

Thermal**Measurements in inches**

Sample#	B1		B2		B3		B4		B5		B6		B7		B8
1	1.6100	X	1.6300	X	1.6360	X	1.6480	X	1.6300	X	1.6240	X	1.6620	X	1.5780
2	1.6300	X	1.6040	X	1.6260	X	1.6180	X	1.6500	X	1.6440	X	1.6640	X	1.5960
3	1.6100	X	1.6040	X	1.6460	X	1.5840	X	1.6100	X	1.6240	X	1.6860	X	1.6140
4	1.6000	X	1.6020	X	1.6440	X	1.6220	X	1.6220	X	1.6700	X	1.6760	X	1.5940

DATA Continued**MATING/UNMATING:**

RA-V <u>Sample#</u>	Initial		After 100 Cycles		After Thermal		After Humidity	
	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>
1	14.07	12.05	20.26	17.48	10.90	9.53	13.80	12.48
2	15.57	13.87	21.41	18.35	12.20	10.27	13.67	11.71
3	14.44	13.38	20.09	17.73	12.30	10.09	13.13	12.10
4	12.94	13.56	19.25	16.79	12.22	10.33	13.71	13.11
5	13.37	13.09	18.75	17.92	11.70	9.88	12.92	11.84
6	13.54	13.02	21.03	18.23	11.82	10.40	13.94	12.81
7	13.13	11.84	18.53	15.93	11.32	10.09	13.48	12.13
8	15.09	13.52	23.56	19.25	12.65	10.95	12.48	12.25
9	13.61	12.93	23.02	19.72	12.55	10.96	14.60	14.10
10	13.98	13.13	18.35	14.62	11.82	10.15	13.28	12.48

V-V <u>Sample#</u>	Initial		After 100 Cycles		After Thermal		After Humidity	
	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>
1	17.07	15.25	24.58	22.45	11.05	8.84	15.63	13.64
2	13.30	11.59	19.69	18.92	12.30	11.48	12.99	12.58
3	13.15	13.26	24.25	22.32	12.07	11.09	15.70	14.57
4	12.12	11.18	21.26	19.51	12.19	11.27	14.60	13.03
5	11.49	10.00	19.80	18.63	10.00	9.64	14.45	13.31
6	12.10	10.42	17.57	16.64	11.32	10.20	14.04	13.07
7	12.09	10.04	19.96	18.34	9.97	8.37	12.00	11.45
8	15.95	14.04	25.45	22.65	11.07	9.22	15.22	13.51
9	12.19	10.80	21.88	20.20	10.74	10.08	14.07	12.66
10	14.18	12.30	19.15	17.50	10.25	9.25	13.24	12.07

DATA Continued**NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING): RA-V**

Initial	Deflections in inches Forces in Grams					
<u>Sample</u>						
#	0.002	0.004	0.006	0.008	0.010	SET
1	75.60	162.60	246.80	321.60	400.40	0.00040
2	87.80	178.90	269.90	356.90	437.10	0.00000
3	79.70	166.60	246.80	328.40	408.60	0.00060
4	87.80	177.50	256.30	339.20	412.60	0.00050
5	81.00	163.90	248.20	325.70	397.70	0.00060
6	81.00	168.00	248.20	328.40	403.10	0.00060
7	75.60	161.20	242.80	324.30	401.80	0.00040

Thermal	Deflections in inches Forces in Grams					
Sample #	0.002	0.004	0.006	0.008	0.010	SET
1	45.70	144.90	234.60	321.60	412.60	0.00090
2	40.30	131.30	211.50	299.80	382.70	0.00120
3	83.70	173.40	264.50	358.30	442.50	0.00070
4	85.10	176.20	261.80	348.80	424.90	0.00080
5	72.90	151.70	226.40	306.60	371.90	0.00060
6	82.40	161.20	241.40	316.10	389.50	0.00040
7	76.90	162.60	246.80	337.90	416.70	0.00050

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING): V-V

Initial	Deflections in inches Forces in Grams					
<u>Sample</u>						
#	0.002	0.004	0.006	0.008	0.010	SET
1	78.30	161.20	240.00	313.40	388.20	0.00060
2	87.80	178.90	268.60	361.00	439.80	0.00030
3	89.20	180.20	275.40	359.60	431.70	0.00040
4	89.20	188.40	275.40	355.60	430.30	0.00040
5	89.20	184.30	276.70	369.10	439.80	0.00060
6	91.90	180.20	365.90	350.10	420.80	0.00050
7	87.80	170.70	246.80	324.30	399.00	0.00040
8	89.20	173.40	253.60	333.80	407.20	0.00040

Thermal	Deflections in inches Forces in Grams					
Sample						
#	0.002	0.004	0.006	0.008	0.010	SET
1	82.40	168.00	252.30	333.80	404.50	0.00070
2	85.10	173.40	259.10	339.20	409.90	0.00050
3	79.70	177.50	261.80	348.80	430.30	0.00060
4	89.20	176.20	253.60	331.10	399.00	0.00050
5	85.10	169.40	252.30	331.10	400.40	0.00050
6	86.50	173.40	256.30	331.10	395.00	0.00060
7	85.10	173.40	260.40	342.00	414.00	0.00060

DATA Continued**INSULATION RESISTANCE (IR):**

Row-Row		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	100000	100000
2	100000	100000

Pin-Pin		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	100000	100000
2	100000	100000

Row-Row		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	100000	100000
2	100000	100000

Pin-Pin		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	100000	100000
2	100000	100000

Row-Row		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	100000	100000
2	100000	

Pin-Pin		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	7000	25000
2	100000	

DATA Continued**DIELECTRIC WITHSTANDING VOLTAGE (DWV):**

Row-Row		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	1400	1400
2	1400	1300

Pin-Pin		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	1800	1800
2	1700	1750

Row-Row		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	1250	
2		1300

Pin-Pin		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	1800	
2		1800

Row-Row		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	1200	
2		1200

Pin-Pin		
	Mated	Unmated
	x	x
Sample#	MPSC/MPTC	MPSC
1	1200	
2		1950

DATA Continued**LLCR: RA-V
(SIGNAL)**

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P3	10.9	-0.8	-0.8	-0.4
1	P4	9.3	-0.2	0.2	-0.1
1	P5	9.5	-0.4	-0.4	-0.3
1	P6	11.6	-0.8	-0.8	-0.7
1	P7	5.5	0.2	0.1	0.3
1	P8	7.2	-0.2	-0.2	-0.1
1	P9	5.8	-0.1	-0.1	0.0
1	P10	7.9	-0.6	-0.5	-0.5
1	P11	5.8	-0.3	-0.3	-0.2
1	P12	7.7	-0.6	-0.6	-0.5
1	P13	8.3	-1.0	-0.9	-0.9
1	P14	5.9	-0.3	-0.2	0.2
1	P15	8.2	-0.7	-0.7	-0.6
1	P16	6.0	-0.4	-0.3	-0.1
1	P17	7.7	-0.3	-0.2	0.2
1	P18	7.6	-0.5	-0.4	-0.2
1	P19	6.3	-0.2	-0.2	-0.1
1	P20	9.0	-0.4	-0.3	-0.1
1	P21	11.2	-0.5	-0.4	-0.3
1	P22	8.9	0.0	0.2	0.3
1	P23	12.1	-1.0	-1.0	-0.8
2	P3	11.2	-0.3	-0.2	-0.1
2	P4	8.6	0.0	0.5	0.0
2	P5	8.6	-0.1	0.3	0.9
2	P6	10.5	-0.1	0.0	-0.1
2	P7	5.9	-0.3	-0.4	-0.2
2	P8	7.3	-0.4	-0.2	-0.2
2	P9	5.8	-0.4	-0.4	-0.4
2	P10	7.6	-0.5	-0.4	-0.4
2	P11	5.6	-0.3	-0.3	-0.3
2	P12	7.3	-0.3	0.1	0.1
2	P13	7.3	-0.1	-0.1	0.1
2	P14	5.6	-0.3	-0.3	-0.2
2	P15	7.5	-0.3	-0.3	-0.3
2	P16	6.3	-0.8	-0.8	-0.7
2	P17	7.3	-0.1	0.1	0.2
2	P18	7.2	-0.2	-0.1	0.1
2	P19	6.2	-0.2	-0.2	0.4
2	P20	8.9	0.0	0.1	0.1
2	P21	11.4	-0.4	-0.4	-0.3

2	P22	9.7	-0.7	-0.3	-0.4
2	P23	11.0	-0.2	-0.1	0.1
3	P3	10.8	-0.2	-0.2	-0.2
3	P4	8.5	0.0	0.0	-0.1
3	P5	8.8	-0.1	-0.2	-0.2
3	P6	10.8	-0.1	-0.1	-0.1
3	P7	5.6	0.1	0.1	0.2
3	P8	7.4	-0.5	-0.5	-0.5
3	P9	5.4	0.3	0.3	0.3
3	P10	7.3	-0.2	-0.2	-0.2
3	P11	5.4	0.0	0.0	0.1
3	P12	7.9	-0.6	-0.5	-0.4
3	P13	7.8	-0.4	-0.4	-0.5
3	P14	6.3	-0.7	-0.7	-0.7
3	P15	7.7	-0.3	-0.3	-0.4
3	P16	6.1	-0.6	-0.6	-0.6
3	P17	7.5	0.0	0.0	-0.1
3	P18	7.4	-0.3	-0.3	-0.3
3	P19	6.8	-1.2	-1.2	-1.2
3	P20	9.8	-0.7	-0.5	-0.7
3	P21	11.6	-0.2	-0.1	-0.2
3	P22	9.6	0.0	0.0	-0.1
3	P23	10.9	-0.6	-0.4	-0.5
4	P3	10.5	-0.2	-0.2	0.0
4	P4	8.8	-0.1	-0.1	-0.2
4	P5	9.4	-0.5	-0.5	-0.5
4	P6	11.5	-0.7	-0.8	-0.8
4	P7	5.5	0.0	0.0	0.1
4	P8	7.3	-0.4	-0.3	-0.4
4	P9	5.8	0.0	0.1	0.1
4	P10	7.4	-0.3	-0.2	-0.3
4	P11	5.6	-0.4	-0.3	-0.3
4	P12	7.5	-0.5	-0.6	-0.6
4	P13	7.8	-0.7	-0.7	-0.7
4	P14	5.6	-0.2	-0.1	-0.2
4	P15	8.2	-0.9	-0.9	-0.9
4	P16	5.8	-0.4	-0.4	-0.3
4	P17	7.6	0.0	0.0	-0.1
4	P18	7.8	-0.6	-0.6	-0.6
4	P19	5.9	-0.3	-0.3	-0.3
4	P20	9.7	-0.6	-0.6	-0.6
4	P21	11.4	-0.1	0.0	-0.1
4	P22	10.0	-0.7	-0.7	-0.8
4	P23	11.2	-0.2	-0.1	-0.1
5	P3	11.1	0.1	0.2	0.2
5	P4	8.5	-0.1	0.0	-0.1
5	P5	9.2	-0.4	-0.4	-0.5
5	P6	10.6	-0.4	-0.3	-0.4

5	P7	5.6	0.0	0.0	0.0
5	P8	7.3	-0.1	-0.1	0.1
5	P9	5.5	-0.2	-0.1	-0.2
5	P10	7.5	-0.2	-0.2	-0.3
5	P11	5.7	-0.5	-0.4	-0.5
5	P12	7.2	0.1	0.1	0.0
5	P13	7.3	-0.1	-0.1	-0.1
5	P14	5.9	-0.4	-0.4	-0.5
5	P15	7.2	0.2	0.2	0.3
5	P16	5.9	-0.4	-0.3	-0.3
5	P17	7.3	-0.1	0.2	0.1
5	P18	7.5	-0.3	-0.3	0.0
5	P19	6.4	-0.6	-0.6	-0.8
5	P20	9.4	-0.1	-0.2	-0.3
5	P21	10.9	-0.2	-0.1	-0.4
5	P22	9.6	-0.4	-0.3	-0.5
5	P23	11.3	-0.5	-0.3	-0.5
6	P3	11.1	-0.2	-0.4	-0.4
6	P4	8.7	0.0	0.3	0.3
6	P5	9.7	-0.7	-0.7	-0.1
6	P6	11.0	-0.3	-0.2	-0.1
6	P7	5.7	0.1	0.0	0.4
6	P8	7.2	-0.5	-0.4	-0.3
6	P9	6.0	-0.6	-0.6	-0.6
6	P10	8.0	-0.9	-0.9	-0.8
6	P11	5.9	-0.7	-0.7	-0.6
6	P12	7.6	-0.3	-0.3	-0.1
6	P13	7.7	-0.6	-0.6	-0.4
6	P14	5.8	-0.4	-0.3	-0.3
6	P15	8.2	-0.8	-0.7	-0.7
6	P16	6.4	-0.8	-0.7	-0.6
6	P17	8.0	-0.5	-0.3	-0.2
6	P18	7.7	-0.8	-0.7	-0.7
6	P19	6.3	-0.2	0.0	-0.4
6	P20	9.9	-0.9	-0.9	-0.8
6	P21	11.9	-0.3	-0.4	-0.3
6	P22	10.0	-0.8	-0.6	-0.7
6	P23	12.2	-1.4	-1.5	-1.3
7	P3	10.8	-0.1	-0.1	0.0
7	P4	8.7	0.0	0.1	0.1
7	P5	8.9	-0.2	-0.2	0.0
7	P6	11.0	-0.1	-0.1	0.1
7	P7	5.4	-0.1	0.0	0.0
7	P8	7.1	-0.3	-0.1	-0.2
7	P9	5.6	-0.2	-0.2	-0.1
7	P10	7.4	-0.4	-0.2	-0.2
7	P11	5.2	-0.1	-0.1	0.1
7	P12	7.1	-0.2	0.0	-0.1

7	P13	7.2	-0.1	0.0	-0.1
7	P14	5.3	-0.1	0.0	0.0
7	P15	7.5	-0.5	-0.3	-0.3
7	P16	5.6	-0.4	-0.1	-0.1
7	P17	7.4	-0.5	-0.3	-0.4
7	P18	6.8	-0.1	0.0	-0.1
7	P19	5.5	-0.3	-0.1	-0.2
7	P20	9.5	-0.4	0.0	-0.1
7	P21	11.2	-0.1	0.1	0.0
7	P22	8.7	-0.1	0.0	0.0
7	P23	11.1	-0.8	-0.6	-0.5
8	P3	10.9	-0.6	-0.6	-0.3
8	P4	9.0	-0.4	-0.2	-0.2
8	P5	9.1	-0.3	-0.2	-0.1
8	P6	11.1	-0.4	-0.2	-0.2
8	P7	5.4	0.2	0.2	0.5
8	P8	7.1	-0.2	-0.1	0.1
8	P9	5.4	0.0	0.0	0.3
8	P10	7.4	-0.3	-0.2	-0.2
8	P11	5.4	-0.3	-0.2	-0.1
8	P12	7.2	-0.3	-0.2	0.0
8	P13	7.2	0.1	0.4	0.2
8	P14	5.7	-0.4	-0.3	-0.2
8	P15	7.4	-0.2	0.0	0.4
8	P16	5.6	-0.4	-0.4	-0.2
8	P17	7.4	-0.4	-0.3	-0.2
8	P18	7.1	-0.3	-0.1	-0.2
8	P19	6.0	0.2	-0.4	-0.2
8	P20	9.3	-0.4	-0.4	-0.2
8	P21	11.9	-0.8	-0.8	-0.7
8	P22	9.4	-0.5	-0.5	-0.3
8	P23	11.7	-0.4	-0.4	0.0
9	P3	11.3	-0.1	0.0	-0.1
9	P4	8.6	0.2	0.3	0.1
9	P5	9.2	-0.4	-0.3	-0.4
9	P6	10.6	-0.1	0.1	0.1
9	P7	5.8	0.1	0.0	0.1
9	P8	7.1	-0.1	-0.1	-0.2
9	P9	5.9	-0.5	-0.5	-0.5
9	P10	7.6	-0.3	-0.2	-0.4
9	P11	5.5	-0.3	-0.2	-0.3
9	P12	7.4	-0.3	-0.1	-0.3
9	P13	7.4	-0.3	-0.2	-0.3
9	P14	5.6	-0.4	-0.1	-0.2
9	P15	7.3	-0.3	-0.2	-0.3
9	P16	5.9	-0.5	-0.3	-0.5
9	P17	7.1	-0.1	0.0	-0.1
9	P18	7.2	-0.1	0.0	-0.1

9	P19	6.2	-0.6	-0.5	-0.6
9	P20	9.3	-0.5	-0.3	-0.5
9	P21	10.6	-0.2	-0.1	-0.2
9	P22	9.4	-0.3	-0.1	-0.4
9	P23	11.1	-0.5	-0.3	-0.5
10	P3	11.1	0.1	0.1	0.1
10	P4	9.3	-0.2	-0.1	0.0
10	P5	9.1	-0.5	-0.4	-0.3
10	P6	10.9	-0.3	-0.1	-0.2
10	P7	5.9	-0.1	-0.1	-0.1
10	P8	7.5	-0.3	-0.1	-0.2
10	P9	5.5	-0.3	-0.3	-0.1
10	P10	7.3	-0.3	-0.3	-0.1
10	P11	6.1	-0.4	-0.5	-0.3
10	P12	7.7	-0.3	-0.3	-0.2
10	P13	7.2	-0.2	-0.2	-0.1
10	P14	5.6	-0.1	-0.2	-0.1
10	P15	7.8	-0.5	-0.6	-0.5
10	P16	5.7	-0.1	-0.2	0.0
10	P17	7.8	-0.5	-0.5	-0.4
10	P18	7.9	-0.1	0.0	0.0
10	P19	5.7	0.2	-0.1	0.4
10	P20	9.8	-0.6	-0.5	-0.4
10	P21	11.7	-0.3	-0.2	-0.4
10	P22	10.2	-0.4	-0.5	-0.4
10	P23	11.9	-0.5	-0.4	-0.5

(POWER)

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P1	0.4	0.0	0.0	0.1
1	P2	0.4	0.0	0.0	-0.1
1	P24	0.8	-0.4	-0.4	-0.4
1	P25	0.3	0.0	0.3	1.3
2	P1	0.4	-0.1	0.0	0.0
2	P2	0.4	-0.1	0.0	0.0
2	P24	0.3	0.0	0.0	0.0
2	P25	0.2	0.0	0.0	0.0
3	P1	0.4	0.0	0.0	-0.1
3	P2	0.3	0.0	0.0	0.0
3	P24	0.3	0.0	0.1	0.1
3	P25	0.3	-0.1	0.0	0.0
4	P1	0.4	0.0	-0.1	-0.1
4	P2	0.3	0.0	0.0	0.0
4	P24	0.4	-0.1	-0.1	-0.1
4	P25	0.3	0.0	0.0	0.0
5	P1	0.3	0.0	0.0	0.0

5	P2	0.3	0.0	0.0	0.0
5	P24	0.3	-0.1	0.0	0.0
5	P25	0.3	0.0	0.0	0.0
6	P1	0.4	0.0	0.0	0.0
6	P2	0.3	0.0	0.0	0.0
6	P24	0.4	-0.2	-0.1	-0.1
6	P25	0.3	-0.1	0.0	0.0
7	P1	0.4	0.0	0.0	0.1
7	P2	0.3	0.0	0.0	0.0
7	P24	0.4	-0.1	-0.1	0.0
7	P25	0.3	-0.1	0.0	0.0
8	P1	0.4	-0.2	0.0	0.0
8	P2	0.5	0.0	0.0	0.1
8	P24	0.4	-0.2	-0.1	-0.1
8	P25	0.3	-0.1	-0.1	0.0
9	P1	0.4	0.0	0.0	0.0
9	P2	0.3	0.0	0.0	0.0
9	P24	0.4	-0.1	-0.1	-0.1
9	P25	0.4	-0.1	-0.1	-0.1
10	P1	0.4	-0.1	-0.1	-0.1
10	P2	0.4	-0.1	0.0	0.0
10	P24	0.4	-0.1	0.0	-0.1
10	P25	0.3	0.0	0.0	0.0

**LLCR: V-V
(SIGNAL)**

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P3	6.4	-0.1	-0.2	0.0
1	P4	6.1	0.1	0.1	0.1
1	P5	5.7	-0.2	0.0	0.0
1	P6	5.9	-0.2	-0.1	0.1
1	P7	6.1	-0.1	-0.2	-0.1
1	P8	6.3	-0.2	0.0	0.0
1	P9	6.0	-0.2	-0.1	-0.2
1	P10	6.4	-0.2	0.0	0.1
1	P11	6.2	-0.1	0.0	0.1
1	P12	5.8	-0.2	0.1	0.0
1	P13	6.1	-0.1	0.0	0.1
1	P14	6.2	0.3	0.0	0.5
1	P15	6.1	-0.1	0.0	0.0
1	P16	6.2	-0.3	-0.1	0.0
1	P17	6.4	-0.3	-0.3	-0.2
1	P18	6.1	0.1	0.2	0.2
1	P19	6.5	-0.2	-0.2	-0.1
1	P20	5.9	0.1	0.1	0.1
1	P21	5.7	0.1	0.3	0.2

1	P22	6.1	0.2	0.3	0.3
1	P23	6.1	0.0	0.0	0.0
2	P3	6.5	-0.2	0.0	0.1
2	P4	6.8	-0.2	0.1	0.0
2	P5	6.3	-0.1	0.0	-0.2
2	P6	6.2	0.0	0.1	0.1
2	P7	7.1	-0.6	-0.5	-0.4
2	P8	6.6	-0.3	-0.1	-0.2
2	P9	6.4	-0.3	-0.2	-0.2
2	P10	6.5	-0.2	0.3	0.5
2	P11	6.1	-0.1	0.1	0.4
2	P12	6.2	-0.1	0.2	0.1
2	P13	6.4	-0.3	-0.2	0.1
2	P14	6.1	-0.2	-0.1	0.1
2	P15	6.1	0.0	0.0	-0.1
2	P16	6.5	-0.1	-0.3	0.0
2	P17	6.3	-0.2	0.0	-0.1
2	P18	6.5	-0.2	-0.2	-0.3
2	P19	6.9	-1.0	-1.1	-0.9
2	P20	6.5	-0.3	-0.3	-0.3
2	P21	6.3	0.0	0.1	-0.2
2	P22	6.7	-0.4	-0.3	-0.2
2	P23	6.4	-0.2	0.0	0.2
3	P3	6.6	-0.2	-0.2	0.0
3	P4	6.2	0.0	0.2	0.3
3	P5	6.0	-0.2	0.1	0.3
3	P6	6.3	-0.1	0.1	0.5
3	P7	6.2	0.0	-0.1	0.1
3	P8	6.1	-0.1	0.0	0.7
3	P9	6.2	-0.1	0.1	0.2
3	P10	6.0	0.0	0.2	0.4
3	P11	6.1	-0.1	0.0	0.0
3	P12	6.0	0.1	0.1	0.2
3	P13	6.2	0.0	0.1	0.0
3	P14	6.1	0.1	0.5	0.4
3	P15	6.3	0.0	0.1	0.4
3	P16	5.9	-0.1	0.0	0.3
3	P17	6.1	-0.1	0.0	0.2
3	P18	5.9	0.1	0.1	0.5
3	P19	6.3	-0.1	0.0	0.0
3	P20	5.9	0.1	0.2	0.2
3	P21	6.0	0.0	0.1	0.0
3	P22	6.0	-0.1	0.3	0.1
3	P23	6.2	-0.1	0.2	0.0
4	P3	6.5	-0.2	0.1	-0.2
4	P4	6.7	-0.3	0.0	-0.1
4	P5	6.5	-0.4	-0.3	-0.3
4	P6	6.2	0.0	0.2	0.1

4	P7	6.6	-0.2	0.0	-0.2
4	P8	6.2	-0.3	0.2	0.0
4	P9	6.0	-0.1	-0.1	-0.1
4	P10	6.3	-0.3	0.0	0.0
4	P11	6.8	-0.3	-0.8	-0.9
4	P12	6.6	-0.5	-0.4	-0.4
4	P13	6.4	-0.3	-0.2	-0.2
4	P14	6.5	-0.5	-0.4	-0.4
4	P15	6.2	-0.1	-0.1	0.0
4	P16	6.3	-0.4	-0.4	-0.4
4	P17	6.4	-0.1	0.0	0.1
4	P18	6.5	-0.4	-0.4	-0.2
4	P19	6.2	0.2	-0.2	-0.2
4	P20	6.4	-0.1	-0.1	-0.1
4	P21	6.2	-0.2	0.0	0.0
4	P22	6.2	0.1	0.2	0.1
4	P23	7.2	-0.7	-0.7	-0.7
5	P3	6.3	-0.2	-0.2	-0.2
5	P4	6.4	0.2	0.1	-0.1
5	P5	6.2	-0.2	0.0	-0.1
5	P6	6.2	-0.1	-0.1	-0.1
5	P7	6.2	-0.2	-0.1	0.0
5	P8	6.2	-0.3	-0.1	0.0
5	P9	6.7	-0.4	-0.1	-0.1
5	P10	6.3	-0.2	-0.1	-0.1
5	P11	6.1	0.0	-0.1	0.1
5	P12	6.3	-0.3	0.2	0.4
5	P13	6.9	-0.3	0.1	0.5
5	P14	6.3	-0.2	-0.1	0.0
5	P15	6.2	0.0	0.2	0.2
5	P16	6.1	0.3	0.2	0.3
5	P17	6.3	0.1	0.5	0.7
5	P18	6.2	-0.2	0.1	1.9
5	P19	6.5	-0.1	-0.1	0.2
5	P20	6.1	-0.2	0.0	0.1
5	P21	6.4	-0.1	0.1	0.1
5	P22	6.3	0.0	0.2	0.1
5	P23	6.2	0.0	0.2	0.1
6	P3	6.6	-0.4	-0.2	-0.3
6	P4	6.6	-0.4	-0.3	-0.5
6	P5	5.7	-0.1	0.0	0.0
6	P6	6.1	-0.3	-0.3	-0.3
6	P7	6.7	-0.7	-0.6	-0.5
6	P8	6.8	-0.4	-0.5	-0.6
6	P9	6.0	0.0	0.0	0.0
6	P10	6.5	0.1	0.0	-0.2
6	P11	6.0	-0.3	-0.3	-0.4
6	P12	6.8	-0.2	-0.3	-0.3

6	P13	6.8	-0.2	-0.4	-0.4
6	P14	6.2	0.1	0.1	0.0
6	P15	6.5	-0.2	0.0	0.0
6	P16	6.3	-0.2	-0.2	-0.2
6	P17	6.5	-0.1	0.1	0.0
6	P18	6.6	-0.4	-0.4	-0.3
6	P19	6.5	-0.4	-0.5	-0.4
6	P20	6.5	-0.5	-0.5	-0.6
6	P21	6.1	-0.3	-0.1	-0.1
6	P22	6.5	-0.5	-0.4	-0.3
6	P23	6.4	-0.4	-0.2	-0.5
7	P3	6.6	-0.3	0.4	-0.2
7	P4	6.9	-0.8	-0.5	-0.3
7	P5	5.9	-0.2	0.2	-0.1
7	P6	6.1	-0.1	0.4	0.4
7	P7	6.7	-0.3	-0.4	0.0
7	P8	5.9	-0.1	0.0	0.0
7	P9	5.9	0.0	0.4	0.2
7	P10	5.9	0.1	0.3	0.6
7	P11	6.4	-0.6	-0.4	0.1
7	P12	6.0	0.0	0.2	0.2
7	P13	6.2	-0.1	0.3	0.6
7	P14	6.4	-0.2	0.0	0.2
7	P15	6.5	-0.2	0.0	0.0
7	P16	6.5	-0.3	0.2	0.1
7	P17	6.2	-0.1	0.2	0.2
7	P18	6.1	0.0	0.4	0.2
7	P19	6.4	-0.1	0.1	0.0
7	P20	6.3	-0.2	0.3	-0.1
7	P21	6.0	0.1	0.8	0.4
7	P22	6.4	0.0	0.4	0.2
7	P23	6.0	-0.1	0.4	0.0
8	P3	6.5	0.0	0.0	0.1
8	P4	6.2	0.1	0.3	0.3
8	P5	6.1	-0.3	-0.2	-0.1
8	P6	6.2	0.0	0.3	0.3
8	P7	6.3	-0.2	0.1	0.0
8	P8	6.2	-0.4	-0.1	0.1
8	P9	6.7	-0.4	-0.6	-0.6
8	P10	6.2	-0.3	0.0	0.1
8	P11	6.2	-0.3	-0.1	-0.2
8	P12	6.3	-0.3	0.0	0.0
8	P13	6.5	-0.5	0.1	0.8
8	P14	6.2	-0.2	0.0	-0.1
8	P15	6.3	-0.2	0.4	0.6
8	P16	6.1	0.0	0.1	0.1
8	P17	6.3	-0.3	0.0	0.0
8	P18	6.1	-0.4	-0.1	-0.1

8	P19	6.3	-0.2	0.0	-0.1
8	P20	6.0	-0.3	0.3	0.2
8	P21	5.8	-0.1	0.3	0.4
8	P22	6.3	-0.1	0.3	0.0
8	P23	6.0	-0.1	0.6	0.5
9	P3	6.6	-0.5	-0.4	-0.4
9	P4	6.2	-0.1	-0.1	-0.1
9	P5	5.8	-0.1	0.0	0.0
9	P6	6.4	-0.4	-0.4	-0.3
9	P7	6.4	0.0	0.1	-0.1
9	P8	5.9	0.1	0.1	0.2
9	P9	6.1	-0.1	-0.1	-0.1
9	P10	6.1	-0.1	-0.1	0.1
9	P11	5.6	0.1	0.1	0.1
9	P12	6.2	-0.1	-0.1	0.0
9	P13	6.6	-0.4	-0.4	-0.3
9	P14	6.1	0.1	0.1	0.2
9	P15	6.8	-0.5	-0.5	-0.3
9	P16	6.4	0.0	0.0	0.0
9	P17	6.5	-0.3	-0.3	-0.1
9	P18	6.4	0.1	0.0	0.2
9	P19	6.8	-0.3	-0.2	-0.1
9	P20	6.7	-0.4	-0.5	-0.4
9	P21	6.1	0.0	0.0	0.1
9	P22	6.3	-0.1	-0.1	0.3
9	P23	6.7	0.0	-0.1	0.0
10	P3	6.6	-0.1	0.1	0.1
10	P4	6.6	-0.2	-0.2	-0.2
10	P5	6.3	-0.1	-0.1	-0.2
10	P6	6.4	-0.3	-0.1	-0.2
10	P7	6.2	-0.1	0.0	0.0
10	P8	6.9	-0.7	-0.4	-0.6
10	P9	6.3	-0.3	-0.2	-0.2
10	P10	6.3	-0.3	0.0	-0.3
10	P11	6.2	-0.1	-0.1	-0.1
10	P12	6.3	-0.2	0.1	-0.1
10	P13	6.9	-0.7	-0.5	-0.4
10	P14	6.4	-0.2	-0.1	-0.2
10	P15	6.4	-0.5	-0.3	-0.3
10	P16	6.2	-0.2	-0.1	0.0
10	P17	6.4	-0.2	-0.1	-0.2
10	P18	6.1	-0.4	-0.1	-0.2
10	P19	6.6	-0.6	-0.2	-0.4
10	P20	5.9	-0.2	0.0	0.0
10	P21	6.6	-0.3	-0.2	-0.2
10	P22	6.6	-0.4	-0.4	-0.4
10	P23	6.2	-0.1	-0.1	-0.1

(POWER)

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P1	0.5	0.0	0.0	0.0
1	P2	0.3	0.0	0.0	0.1
1	P24	0.6	-0.2	-0.1	-0.1
1	P25	0.3	-0.1	0.0	0.1
2	P1	0.5	0.1	0.0	0.0
2	P2	0.4	0.0	0.0	0.0
2	P24	0.2	0.0	0.0	0.1
2	P25	0.2	0.0	0.1	0.1
3	P1	0.4	0.1	0.0	0.0
3	P2	0.3	0.0	0.1	0.0
3	P24	0.4	0.1	0.0	0.3
3	P25	0.5	0.0	-0.1	-0.1
4	P1	0.5	0.1	0.2	0.2
4	P2	0.4	0.0	0.1	0.0
4	P24	0.4	-0.1	0.1	0.0
4	P25	0.4	-0.1	0.0	0.0
5	P1	0.5	0.1	0.1	0.0
5	P2	0.7	-0.3	-0.1	0.0
5	P24	0.4	0.4	0.1	0.1
5	P25	0.2	0.1	0.1	0.1
6	P1	0.5	-0.1	0.0	-0.1
6	P2	0.3	0.0	0.2	0.3
6	P24	0.3	0.3	0.0	0.0
6	P25	0.3	0.1	0.0	0.0
7	P1	0.4	0.0	0.0	0.0
7	P2	0.5	0.0	-0.1	-0.2
7	P24	0.3	0.0	0.0	0.0
7	P25	0.3	0.1	0.0	0.1
8	P1	0.4	0.0	0.0	0.1
8	P2	0.4	-0.1	0.0	0.0
8	P24	0.3	0.0	0.1	0.1
8	P25	0.3	0.0	0.0	0.0
9	P1	0.3	0.1	0.1	0.1
9	P2	0.5	-0.1	-0.1	0.1
9	P24	0.4	-0.1	-0.1	-0.1
9	P25	0.4	-0.1	-0.1	-0.1
10	P1	0.4	0.0	0.0	0.0
10	P2	0.4	-0.1	-0.1	-0.1
10	P24	0.3	-0.1	0.0	0.0
10	P25	0.3	-0.1	-0.1	-0.1

DATA Continued**GAS TIGHT: RA-V**

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	0.4	0.0
1	P2	0.3	0.0
1	P3	10.9	0.1
1	P4	8.5	0.0
1	P5	8.9	0.2
1	P6	10.8	-0.1
1	P7	5.4	0.0
1	P8	7.0	0.0
1	P9	5.8	-0.1
1	P10	7.4	0.0
1	P11	5.8	0.0
1	P12	7.4	0.0
1	P13	7.7	-0.2
1	P14	5.5	-0.1
1	P15	7.3	-0.1
1	P16	5.5	-0.1
1	P17	7.4	0.1
1	P18	6.9	0.0
1	P19	6.0	-0.3
1	P20	9.2	-0.1
1	P21	10.5	-0.1
1	P22	9.2	0.1
1	P23	10.6	0.1
1	P24	0.3	-0.1
1	P25	0.3	-0.1
2	P1	0.5	-0.1
2	P2	0.3	0.0
2	P3	10.3	0.2
2	P4	8.5	0.1
2	P5	9.2	-0.3
2	P6	10.9	0.1

2	P7	5.6	-0.1
2	P8	6.9	0.0
2	P9	5.8	0.0
2	P10	7.7	-0.1
2	P11	5.5	0.0
2	P12	7.4	0.0
2	P13	7.8	-0.2
2	P14	5.5	0.1
2	P15	7.4	-0.1
2	P16	5.7	0.0
2	P17	7.6	0.0
2	P18	7.5	0.1
2	P19	5.8	-0.2
2	P20	9.2	0.0
2	P21	10.9	0.0
2	P22	9.5	0.0
2	P23	11.1	0.0
2	P24	0.6	-0.2
2	P25	0.3	0.0
3	P1	0.4	0.0
3	P2	0.3	0.0
3	P3	11.9	-0.4
3	P4	8.7	0.0
3	P5	8.9	0.1
3	P6	11.1	0.3
3	P7	6.6	-0.4
3	P8	7.3	0.2
3	P9	5.4	0.1
3	P10	7.2	0.3
3	P11	5.4	0.1
3	P12	7.0	0.1
3	P13	7.2	0.3
3	P14	5.5	0.1
3	P15	7.9	0.2
3	P16	5.7	0.0
3	P17	7.4	0.1
3	P18	7.6	-0.1
3	P19	5.8	-0.1
3	P20	9.0	0.1
3	P21	11.3	-0.1
3	P22	9.0	0.0
3	P23	10.6	-0.2
3	P24	0.3	0.0
3	P25	0.3	0.0
4	P1	0.5	-0.1
4	P2	0.3	-0.1
4	P3	10.6	0.0
4	P4	9.4	0.0

4	P5	9.3	-0.1
4	P6	10.9	0.1
4	P7	5.9	0.1
4	P8	7.3	0.0
4	P9	6.0	0.6
4	P10	7.6	0.0
4	P11	5.6	0.1
4	P12	7.3	-0.1
4	P13	7.3	0.1
4	P14	5.3	0.0
4	P15	7.2	0.0
4	P16	5.4	-0.1
4	P17	6.9	0.1
4	P18	6.9	0.1
4	P19	5.5	0.2
4	P20	8.9	-0.1
4	P21	11.3	0.0
4	P22	9.2	0.1
4	P23	11.1	0.0
4	P24	0.3	0.0
4	P25	0.3	-0.1
5	P1	0.4	0.0
5	P2	0.5	-0.1
5	P3	10.1	0.2
5	P4	8.5	0.1
5	P5	8.9	0.1
5	P6	11.3	0.0
5	P7	5.6	0.0
5	P8	7.3	0.0
5	P9	5.8	0.0
5	P10	7.3	0.1
5	P11	5.3	0.0
5	P12	7.3	0.1
5	P13	7.4	0.1
5	P14	5.7	0.0
5	P15	7.5	0.1
5	P16	5.9	-0.1
5	P17	8.2	-0.2
5	P18	7.6	-0.3
5	P19	5.8	-0.1
5	P20	9.2	-0.1
5	P21	10.8	0.1
5	P22	9.5	0.0
5	P23	10.7	0.1
5	P24	0.4	-0.1
5	P25	0.3	-0.1
6	P1	0.5	-0.1
6	P2	0.4	0.0

6	P3	11.2	-0.1
6	P4	9.1	-0.1
6	P5	8.9	0.0
6	P6	11.0	-0.2
6	P7	5.7	-0.2
6	P8	7.1	0.1
6	P9	6.0	-0.3
6	P10	7.6	0.1
6	P11	5.8	0.0
6	P12	7.3	0.0
6	P13	8.0	0.0
6	P14	5.7	0.0
6	P15	7.7	0.0
6	P16	5.6	0.0
6	P17	7.6	0.0
6	P18	7.4	-0.1
6	P19	5.7	0.0
6	P20	9.2	-0.1
6	P21	10.5	0.0
6	P22	9.1	0.0
6	P23	10.4	0.0
6	P24	0.5	0.2
6	P25	0.3	0.0
7	P1	0.4	0.0
7	P2	0.3	0.0
7	P3	10.5	-0.1
7	P4	8.7	0.1
7	P5	9.1	0.2
7	P6	12.5	0.6
7	P7	6.6	-0.2
7	P8	7.5	-0.2
7	P9	5.7	0.0
7	P10	7.6	0.0
7	P11	5.4	0.2
7	P12	7.7	-0.2
7	P13	7.9	-0.1
7	P14	6.0	-0.3
7	P15	7.4	0.4
7	P16	5.8	-0.3
7	P17	7.8	0.0
7	P18	7.0	0.0
7	P19	6.2	-0.2
7	P20	9.9	-0.1
7	P21	11.7	0.1
7	P22	9.8	-0.2
7	P23	11.1	-0.1
7	P24	0.3	0.0
7	P25	0.7	-0.5

8	P1	0.4	0.0
8	P2	0.4	-0.1
8	P3	11.4	0.3
8	P4	8.8	0.0
8	P5	8.9	0.0
8	P6	11.0	0.2
8	P7	6.2	0.3
8	P8	7.3	-0.2
8	P9	5.8	0.1
8	P10	7.5	0.1
8	P11	5.4	0.0
8	P12	7.2	0.0
8	P13	7.2	0.1
8	P14	5.5	0.1
8	P15	7.5	-0.1
8	P16	5.4	0.0
8	P17	7.4	0.0
8	P18	7.2	-0.1
8	P19	5.7	-0.1
8	P20	9.2	0.0
8	P21	10.4	0.1
8	P22	9.3	0.0
8	P23	10.7	0.0
8	P24	0.4	0.0
8	P25	0.3	0.0
9	P1	0.4	0.0
9	P2	0.3	0.0
9	P3	10.5	0.6
9	P4	9.1	0.4
9	P5	9.3	0.3
9	P6	11.0	0.4
9	P7	5.6	0.0
9	P8	7.3	0.0
9	P9	5.7	0.3
9	P10	7.8	0.1
9	P11	5.4	0.1
9	P12	7.2	0.1
9	P13	7.8	0.2
9	P14	5.5	0.0
9	P15	7.5	0.1
9	P16	5.6	0.1
9	P17	7.9	0.1
9	P18	7.6	0.0
9	P19	6.2	-0.2
9	P20	9.0	0.2
9	P21	11.0	0.3
9	P22	9.7	-0.2
9	P23	11.3	0.3

9	P24	0.4	-0.1
9	P25	0.3	0.0
10	P1	0.5	-0.1
10	P2	0.4	-0.1
10	P3	11.2	0.0
10	P4	8.8	0.0
10	P5	8.9	0.2
10	P6	10.7	0.0
10	P7	6.0	0.2
10	P8	7.4	0.0
10	P9	5.7	0.0
10	P10	7.6	0.0
10	P11	5.7	-0.1
10	P12	7.3	0.2
10	P13	7.5	0.0
10	P14	6.0	-0.4
10	P15	7.2	0.1
10	P16	5.8	0.1
10	P17	7.5	0.0
10	P18	7.1	0.1
10	P19	5.9	0.4
10	P20	9.3	0.0
10	P21	11.0	-0.1
10	P22	9.3	0.0
10	P23	12.8	-1.0
10	P24	0.3	0.0
10	P25	0.3	-0.1

GAS TIGHT: V-V

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	0.4	0.0
1	P2	0.5	-0.1
1	P3	6.7	0.3
1	P4	6.9	0.5
1	P5	6.3	0.5
1	P6	6.1	0.4
1	P7	6.5	-0.2
1	P8	5.9	0.1
1	P9	6.1	0.2
1	P10	6.2	0.2
1	P11	5.9	0.1
1	P12	6.2	0.0
1	P13	6.2	0.1
1	P14	6.2	0.3
1	P15	6.2	0.1
1	P16	6.2	0.1

1	P17	6.1	0.1
1	P18	5.7	0.2
1	P19	6.2	0.0
1	P20	6.4	0.4
1	P21	6.1	0.2
1	P22	6.9	0.3
1	P23	6.1	0.1
1	P24	0.3	0.0
1	P25	0.4	-0.1
2	P1	0.4	0.0
2	P2	0.5	-0.1
2	P3	6.2	0.0
2	P4	6.6	0.0
2	P5	5.9	0.0
2	P6	6.1	-0.1
2	P7	6.6	-0.1
2	P8	6.2	0.1
2	P9	6.2	0.2
2	P10	6.3	0.0
2	P11	6.1	0.1
2	P12	6.4	0.1
2	P13	6.6	-0.1
2	P14	6.1	0.1
2	P15	6.2	0.0
2	P16	6.2	0.2
2	P17	6.2	0.1
2	P18	6.1	-0.1
2	P19	6.3	0.0
2	P20	5.9	0.1
2	P21	6.0	0.0
2	P22	6.5	0.1
2	P23	6.1	0.0
2	P24	0.5	-0.1
2	P25	0.3	0.0
3	P1	0.6	-0.2
3	P2	0.6	-0.2
3	P3	6.5	-0.1
3	P4	6.7	0.1
3	P5	6.3	0.2
3	P6	6.0	0.0
3	P7	6.0	0.2
3	P8	6.2	0.1
3	P9	6.2	0.2
3	P10	6.6	0.1
3	P11	6.2	0.3
3	P12	6.2	0.1
3	P13	6.5	0.4
3	P14	6.4	0.1

3	P15	6.2	0.0
3	P16	6.5	-0.2
3	P17	6.3	0.3
3	P18	6.5	0.0
3	P19	6.4	0.0
3	P20	6.6	-0.1
3	P21	6.1	-0.1
3	P22	6.6	0.0
3	P23	6.4	-0.1
3	P24	0.4	-0.1
3	P25	0.5	-0.2
4	P1	0.4	-0.1
4	P2	0.6	-0.2
4	P3	6.2	0.0
4	P4	6.2	0.5
4	P5	6.1	0.1
4	P6	5.9	0.1
4	P7	6.5	-0.2
4	P8	6.0	0.0
4	P9	6.1	0.0
4	P10	6.3	0.2
4	P11	5.9	0.0
4	P12	6.1	0.3
4	P13	6.1	0.1
4	P14	5.9	0.1
4	P15	6.2	0.1
4	P16	6.2	0.1
4	P17	6.3	0.0
4	P18	6.3	0.1
4	P19	6.3	-0.3
4	P20	6.4	0.2
4	P21	6.1	0.1
4	P22	6.1	0.1
4	P23	6.0	0.1
4	P24	0.3	-0.1
4	P25	0.4	-0.2
5	P1	0.4	-0.1
5	P2	0.3	0.0
5	P3	6.0	-0.2
5	P4	6.6	-0.3
5	P5	5.8	-0.1
5	P6	5.9	0.2
5	P7	6.0	0.1
5	P8	6.1	-0.2
5	P9	6.3	-0.2
5	P10	6.1	0.2
5	P11	6.1	-0.3
5	P12	6.1	-0.1

5	P13	6.5	-0.3
5	P14	6.8	-0.6
5	P15	6.8	-0.4
5	P16	6.3	-0.3
5	P17	6.3	-0.1
5	P18	6.0	-0.3
5	P19	6.3	-0.2
5	P20	6.1	-0.1
5	P21	6.2	-0.4
5	P22	6.1	-0.1
5	P23	6.3	0.0
5	P24	0.4	-0.2
5	P25	0.3	0.2
6	P1	0.4	0.0
6	P2	0.5	0.0
6	P3	6.9	-0.1
6	P4	7.0	0.0
6	P5	6.2	0.2
6	P6	6.1	0.1
6	P7	6.6	0.0
6	P8	6.1	0.2
6	P9	5.9	0.0
6	P10	6.4	0.1
6	P11	5.8	0.0
6	P12	6.5	0.0
6	P13	6.6	0.1
6	P14	5.9	0.1
6	P15	6.2	0.0
6	P16	5.7	0.0
6	P17	6.4	0.1
6	P18	5.9	0.0
6	P19	6.0	0.0
6	P20	6.9	-0.3
6	P21	6.0	0.0
6	P22	6.3	0.1
6	P23	6.5	-0.2
6	P24	0.4	-0.1
6	P25	0.3	0.0
7	P1	0.5	-0.1
7	P2	0.4	-0.1
7	P3	6.0	0.2
7	P4	6.2	0.1
7	P5	6.3	-0.2
7	P6	6.0	0.2
7	P7	6.4	0.0
7	P8	6.2	-0.3
7	P9	6.0	0.1
7	P10	6.4	0.0

7	P11	6.0	-0.1
7	P12	6.2	0.0
7	P13	6.2	0.0
7	P14	6.0	0.1
7	P15	6.4	0.0
7	P16	5.9	0.3
7	P17	6.1	0.2
7	P18	6.2	0.0
7	P19	6.4	-0.1
7	P20	6.4	0.2
7	P21	6.2	0.1
7	P22	6.6	0.0
7	P23	6.5	0.1
7	P24	0.3	0.0
7	P25	0.3	-0.2
8	P1	0.4	-0.1
8	P2	0.5	-0.2
8	P3	6.6	-0.3
8	P4	7.0	-0.4
8	P5	6.3	-0.4
8	P6	6.1	-0.1
8	P7	6.7	-0.3
8	P8	6.0	-0.1
8	P9	5.9	0.3
8	P10	6.1	0.1
8	P11	5.9	0.0
8	P12	6.1	0.0
8	P13	6.2	0.1
8	P14	6.4	-0.1
8	P15	6.3	0.2
8	P16	6.0	0.1
8	P17	6.3	0.1
8	P18	6.1	0.2
8	P19	6.6	0.1
8	P20	5.9	0.2
8	P21	6.3	0.1
8	P22	6.1	0.2
8	P23	6.8	0.4
8	P24	0.4	0.0
8	P25	0.3	0.0
9	P1	0.4	0.0
9	P2	0.4	0.0
9	P3	6.5	-0.1
9	P4	6.8	0.3
9	P5	6.5	0.2
9	P6	6.3	0.1
9	P7	6.4	0.0
9	P8	6.3	0.0

9	P9	6.2	0.0
9	P10	6.2	0.2
9	P11	6.1	0.0
9	P12	6.4	0.1
9	P13	6.3	0.0
9	P14	6.4	0.2
9	P15	6.1	0.1
9	P16	5.9	0.1
9	P17	6.3	0.0
9	P18	6.2	0.0
9	P19	6.3	0.2
9	P20	6.3	0.0
9	P21	5.7	0.0
9	P22	6.2	0.1
9	P23	6.0	0.1
9	P24	0.3	0.0
9	P25	0.3	0.0
10	P1	0.3	0.0
10	P2	0.5	-0.1
10	P3	6.3	-0.2
10	P4	6.4	-0.2
10	P5	6.2	-0.7
10	P6	6.0	-0.2
10	P7	6.3	-0.2
10	P8	6.3	-0.3
10	P9	6.1	-0.4
10	P10	6.1	-0.1
10	P11	6.3	0.0
10	P12	6.2	-0.2
10	P13	6.3	0.0
10	P14	6.1	-0.3
10	P15	6.6	-0.2
10	P16	6.3	-0.4
10	P17	6.2	-0.1
10	P18	5.8	-0.1
10	P19	6.1	-0.3
10	P20	6.3	-0.2
10	P21	5.9	-0.2
10	P22	6.6	-0.3
10	P23	5.9	-0.2
10	P24	0.4	-0.2
10	P25	0.3	0.4

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** TCT-03**Description:** Dillon Quantrol TC2 Test Stand**Manufacturer:** Dillon Quantrol**Model:** TC2**Serial #:** 02-1033-03**Accuracy:** Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.

... Last Cal: 5/18/07, Next Cal: 5/18/08

Equipment #: THC-04**Description:** Temperature/Humidity Chamber**Manufacturer:** Thermotron**Model:** SM-8-3800**Serial #:** 37782**Accuracy:** See Manual

... Last Cal: 09/21/2007, Next Cal: 09/21/2008

Equipment #: OV-03**Description:** Cascade Tek Forced Air Oven**Manufacturer:** Cascade Tek**Model:** TFO-5**Serial #:** 0500100**Accuracy:** Temp. Stability: +/- .1C/C change in ambient

... Last Cal: 06/62/07, Next Cal: 06/22/08

Equipment #: HPM-01**Description:** Hipot Megommeter**Manufacturer:** Hipotronics**Model:** H306B-A**Serial #:** M9905004**Accuracy:** 2 % Full Scale Accuracy

... Last Cal: 06/22/07, Next Cal: 06/22/08

Equipment #: STG-01**Description:** Hipot Megomter Safety Test Cage**Manufacturer:** Hipotronics**Model:** TC-25**Serial #:** M9910141**Accuracy:** N/A

... Last Cal: No Calibration Required, Next Cal:

Equipment #: MO-01**Description:** Micro-Ohmmeter**Manufacturer:** Keithley**Model:** 580**Serial #:** 0772740**Accuracy:** See Manual

... Last Cal: 06/22/07, Next Cal: 06/22/08

Equipment #: MO-04**Description:** Multimeter /Data Acquisition System**Manufacturer:** Keithley**Model:** 2700**Serial #:** 0798688**Accuracy:** See Manual - DO NOT USE UNTIL CALIBRATED. See Manual - DO NOT USE UNTIL CALIBRATED.

... Last Cal: 03/8/07, Next Cal: 03/8/08

Equipment #: PS-02**Description:** System Power Supply, 0 - 20V/ 0 - 30 amp, 200 Watts**Manufacturer:** Hewlett Packard**Model:** 6033A**Serial #:** (HP) 2847A-04167**Accuracy:** See Manual

... Last Cal: 03/08/2007, Next Cal: 03/08/2008